Exam

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use logarithmic differentiation to find the derivative of y.

1) $y = \sqrt{x(x+2)}$ 1) _____

A) $\left(\frac{\sqrt{x(x+2)}}{2}\right)\left(\frac{1}{x} + \frac{1}{x+2}\right)$ B) $\left(\frac{\ln x + \ln(x+2)}{2}\right)$

C) $\left(\frac{1}{2}\right)\left(\frac{1}{x} + \frac{1}{x+2}\right)$ D) $\sqrt{x(x+2)}(2x+2)$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

2) Which of the following items is undefined and why? 2) _____
$\tan^{-1} 2$ or $\cos^{-1} 2$

3) Show that $\int \ln ax\, dx = x \ln ax - x + C$. 3) _____

4) Suppose you are looking for an item in an ordered list one million items long. Which would be better, a sequential search or a binary search? Why? 4) _____

5) Consider the graphs of $y = \cos^{-1} x$ and $y = \sin^{-1} x$. Does it make sense that the derivatives of these functions are opposites? Explain. 5) _____

6) Graph $f(x) = \cos^{-1}\frac{x}{\sqrt{x^2+1}}$ and $g(x) = \tan^{-1}\frac{1}{x}$. Explain why the graph looks like it does. 6) _____

7) A polynomial f(x) has a degree smaller than or equal to another polynomial g(x). Does f = O(g) and does g = O(f)? 7) _____

8) Graph $y = \sin^{-1}(\sin x)$. Explain why the graph looks like it does. 8) _____

9) How do you know that $f(x) = -3e^x$ is concave down over every interval of x-values? 9) _____

10) Explain when $\log_a b$ could equal $1/\log_a b$. 10) _____

11) Derive the identity $\sec^{-1}(-x) = \pi - \sec^{-1} x$ by combining the following two equations: 11) _____
$\cos^{-1}(-x) = \pi - \cos^{-1} x$
$\sec^{-1} x = \cos^{-1}(1/x)$

12) Show that the equation for converting base 10 logarithms to base 4 logarithms is 12) _____
$\log_4 x = \frac{\ln 10}{\ln 4}\log_{10} x$.

13) Show that $\lim_{x\to\infty}\frac{\ln(x+1)}{\ln x} = \lim_{x\to\infty}\frac{\ln(x+9975)}{\ln x}$. 13) _____
Explain why this is the case.

14) Graph $f(x) = (x-4)^2 e^x$ and its first derivative together. Comment on the behavior of f in relation to the signs and values of f'. Identify significant points. 14) _____

15) Which of the following items is undefined and why? 15) _____
$\csc^{-1}\frac{1}{8}$ or $\cos^{-1} 8$

16) Show that $y = \sqrt{x^6 + x}$ and $y = \sqrt{x^6 + x^4}$ grow at the same rate as $x \to \infty$ by showing that they both grow at the same rate as $y = x^3$ as $x \to \infty$. 16) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Answer the question appropriately.

17) Find a curve through the origin in the xy-plane whose length from x=0 to x=1 is 17) _____
$L = \int_0^1 \sqrt{1 + \frac{1}{49}e^{x}}\, dx$.

A) $y = x^2$ B) $y = \frac{2}{7}e^{x/2}$ C) $y = e^x - 1$ D) $y = \frac{2}{7}e^{x/2} - \frac{2}{7}$

Solve the initial value problem.

18) $\frac{dy}{dx} = -6e^{-x}\sec e^{-x}\tan e^{-x}$, $y(0) = 6\sec 1 + 6$ 18) _____

A) $y = 6\tan e^{-x} + 6$ B) $y = -6\sec e^{-x} + 1$
C) $y = 6\sec e^{-x} + 6$ D) $y = -6\sec x + 1$

Find the derivative of y with respect to x, t, or θ, as appropriate.

19) $y = e^{7-9x}$ 19) _____

A) $7e^{7-9x}$ B) e^{-9} C) $-9e^{7-9x}$ D) $-9\ln(7-9x)$

Determine whether the integration formula is correct.

20) $\int \frac{\tanh^{-1}(\ln x)}{x}\, dx = \ln x \tanh^{-1}(\ln x) + \frac{1}{2}\ln(1-(\ln x)^2) + C$ 20) _____

A) Yes B) No

A value of sinh x or cosh x is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

21) $\cosh x = \frac{17}{15}$, $x < 0$, $\operatorname{csch} x =$ 21) _____

A) $-\frac{8}{15}$ B) $\frac{15}{8}$ C) $-\frac{15}{17}$ D) $-\frac{15}{8}$

Find the limit.

22) $\lim_{x\to-\infty}\tan^{-1} x$ 22) _____

A) $\frac{\pi}{2}$ B) 0 C) $-\frac{\pi}{2}$ D) $-\infty$

23) $\lim_{x\to\infty} x\tan^{-1}\frac{6}{x}$ 23) _____

A) -6 B) 6 C) $\frac{1}{6}$ D) ∞

Evaluate the integral.

24) $\int_0^{\ln 5} 8\cosh^2\left(\frac{x}{2}\right) dx$ 24) _____

A) $\frac{8}{3}(e^{15} - e^{-15})$ B) $4\left(\frac{12}{5} + \ln 5\right)$ C) $\frac{17576}{125}$ D) $4\left(\frac{13}{5} - \ln 5\right)$

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

25) $y = (x+9)^x$ 25) _____

A) $x + (9)^{x-1}$ B) $x\ln(x+9)$

C) $(x+9)^x\left(\ln(x+9) + \frac{x}{x+9}\right)$ D) $\ln(x+9) + \frac{x}{x+9}$

Find the slowest growing and the fastest growing functions as $x \to \infty$.

26) $y = x + 7$ 26) _____
$y = e^x$
$y = x^2 + \cos^2 x$
$y = 6^x$

A) Slowest: $y = x + 7$ B) Slowest: $y = e^x$
Fastest: $y = 6^x$ Fastest: $y = x^2 + \cos^2 x$
C) Slowest: $y = x + 7$ D) Slowest: $y = x + 7$
Fastest: $y = e^x$ Fastest: $y = x^2 + \cos^2 x$

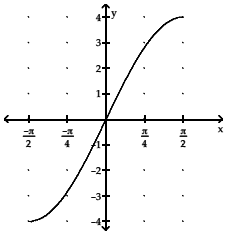
Solve the initial value problem.

27) $\frac{dy}{dx} = \frac{8}{16 + x^2}$, $y(0) = -3$ 27) _____

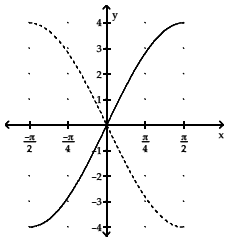
A) $y = 2\tan^{-1}\frac{x}{4} - 3$ B) $y = \tan^{-1}\frac{x}{4} - 3$ C) $y = 2\cot^{-1}\frac{x}{4} - 3$ D) $y = \tan^{-1}\frac{x}{4}$

Graph the inverse of the function plotted, on the same set of axes. Use a dashed curve for the inverse.

28) 28)



A)



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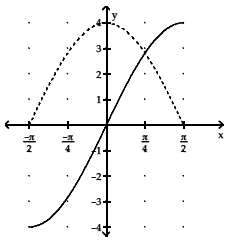

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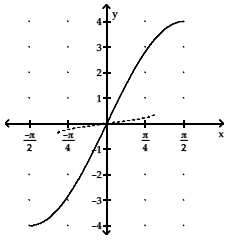

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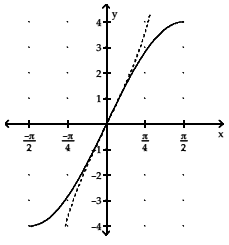


Evaluate the integral.

29) $\int_4^{2\sqrt{11}} \frac{dt}{\sqrt{t^2 - 8t + 20}}$ 29) _____

A) Undefined B) $\frac{\pi}{12}$ C) $\frac{\pi}{10} + \frac{\sqrt{3}}{2}$ D) $\frac{\pi}{6}$

Find $\frac{dy}{dx}$.

30) $6^{x+y} = y^{\ln 6}$ 30) _____

A) $\frac{6^{x+y}}{6^{x+y} + y^{\ln 6 - 1}}$ B) $\frac{6^{x+y}}{6^{x+y} + \ln 6\, y^{\ln 6 - 1}}$

C) $\frac{\ln 6 \ln y}{xy}$ D) $\frac{1}{y^{\ln 6 - 1}}$

Evaluate the integral.

31) $\int_0^{\sqrt{\ln \pi}} 2x\, e^{x^2} \sin\left(e^{x^2}\right) dx$ 31) _____

A) $1 - \cos 1$ B) -1 C) 1 D) $1 + \cos 1$

Find the derivative of y with respect to x.

32) $y = \tan^{-1}\sqrt{7x}$ 32) _____

A) $\frac{1}{1+7x}$ B) $\frac{1}{\sqrt{1-7x}}$ C) $\frac{1}{14\sqrt{7x}(1+7x)}$ D) $\frac{7}{2(1+7x)\sqrt{7x}}$

Find the derivative of y.

33) $y = \ln(\operatorname{sech}(3x+1))$ 33) _____

A) $-3\tanh(3x+1)$ B) $-\tanh(3x+1)$ C) $\tanh(3x+1)$ D) $\frac{3}{\operatorname{sech}(3x+1)}$

Solve the initial value problem.

34) $\frac{d^2y}{dx^2} = -3e^{-x},\ y(0) = -4,\ y'(0) = 0$ 34) _____

A) $y = 3e^{-x} + C$ B) $y = -3e^{-x} - 3x - 1$

C) $y = -3e^{-x} - 4$ D) $y = -3e^{-x} + 3x - 7$

Determine whether the integration formula is correct.

35) $\int \tanh^{-1} x\, dx = x\tanh^{-1} x + \frac{1}{2}\ln(1 - x^2) + C$ 35) _____

A) Yes B) No

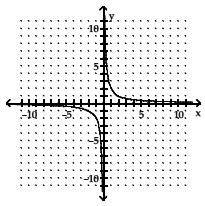
Evaluate the integral.

36) $\int \frac{dx}{\sqrt{16 - x^2}}$ 36) _____

A) $\frac{1}{2}\sin^{-1}\frac{1}{4}x + C$ B) $2\cos^{-1}\frac{1}{4}x + C$ C) $\sin^{-1}\frac{1}{4}x + C$ D) $\cos^{-1}\frac{1}{4}x + C$

Is the function graphed below one–to–one?

37) 37)



A) No B) Yes

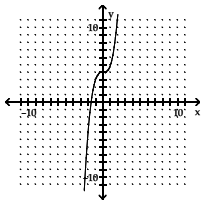
Evaluate the integral.

38) $\int -e^{\cos^{-1} x} \frac{dx}{\sqrt{1 - x^2}}$ 38) _____

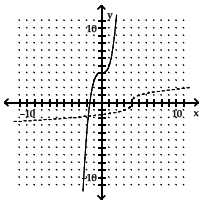
A) $e^{\cos^{-1} x} + C$ B) $\frac{e^{\sin^{-1} x}}{\sin^{-1} x} + C$ C) $-e^{\sin^{-1} x} + C$ D) $\sqrt{-e^{\cos^{-1} x}} + C$

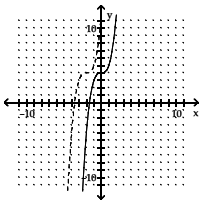
Graph the inverse of the function plotted, on the same set of axes. Use a dashed curve for the inverse.

39) 39)

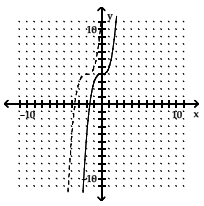


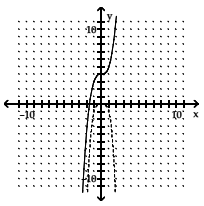
A) B)





C) D)





Solve the problem.

40) Consider the area of the region in the first quadrant enclosed by the curve $y = \frac{1}{10}\cosh 10x$, the coordinate axes, and the line $x = 10$. This area is the same as the area of a rectangle of a length s, where s is the length of the curve from $x = 0$ to $x = 10$. What is the height of the rectangle? 40) _____

A) $\sinh 100$ B) $\frac{1}{10}$ C) 10 D) $\frac{1}{100}\sinh 100$

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

41) $y = x^{3\sin x}$ 41) _____

A) $x^{\sin x}\left(\cos x \ln x + \frac{\sin x}{x}\right)$ B) $3\sin x \ln x$

C) $3x^{3\sin x}\left(\cos x \ln x + \frac{\sin x}{x}\right)$ D) $3\cos x \ln x + \frac{\sin x}{x}$

Find the derivative of y with respect to the appropriate variable.

42) $y = \sinh^{-1}\sqrt{5x}$ 42) _____

A) $\frac{1}{2\sqrt{5x(1+5x)}}$ B) $\frac{5}{2\sqrt{5x(1+5x)}}$ C) $\frac{5}{2\sqrt{5x(5x-1)}}$ D) $\frac{1}{\sqrt{1+5x}}$

Determine whether the integration formula is correct.

43) $\int 2x^3 \operatorname{sech}^{-1} x^2\, dx = \frac{x^4}{2}\operatorname{sech}^{-1} x + \frac{1}{2}\sqrt{1 - x^4} + C$ 43) _____

A) No B) Yes

Express the value of the inverse hyperbolic function in terms of natural logarithms.

44) $\tanh^{-1}\left(\frac{10}{11}\right)$ 44) _____

A) $\frac{1}{2}\ln -21$ B) $\frac{1}{2}\ln 21$ C) $\frac{1}{2}\ln 1$ D) $\frac{1}{2}\ln 231$

Determine whether the integration formula is correct.

45) $\int x^4 \tan^{-1} x\, dx = \frac{1}{5}\left(x^5 \tan^{-1} x - \int \frac{x^5\, dx}{1 + x^2}\right) + C$ 45) _____

A) No B) Yes

A value of $\sinh x$ or $\cosh x$ is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

46) $\cosh x = \frac{13}{12},\ x > 0,\ \tanh x =$ 46) _____

A) $-\frac{25}{144}$ B) $\frac{5}{12}$ C) $\frac{13}{5}$ D) $\frac{5}{13}$

Solve the problem.

47) A region in the first quadrant is bounded above by the curve $y = \cosh x$, below by the curve $y = \sinh x$, on the left by the y–axis, and on the right by the line $x = 7$. Find the volume of the solid generated by revolving the region about the x-axis. 47) _____

A) 7π B) 0 C) 2π D) $\frac{\pi}{2}\left(e^{-14} + 1\right)$

Evaluate the integral.

48) $\int \frac{4e^{(4\sin 6x)}}{\sec 6x} dx$ 48) _____

A) $\frac{1}{6}e^{(4\sin 6x)} + C$ B) $\frac{1}{6}\ln(\sec 6x) + C$ C) $e^{(4\sin 6x)} + C$ D) $4\ln(\sec 6x) + C$

Solve the initial value problem.

49) $\frac{dy}{dx} = \frac{6}{x\sqrt{x^2 - 9}}$, $x > 3$, $y(6) = -3$ 49) _____

A) $y = 2\sec^{-1}\frac{x}{3} - 3 - \frac{2}{3}\pi$ B) $y = \sec^{-1}\frac{x}{3} - 3$

C) $y = 2\sec^{-1}\frac{x}{3} - 3$ D) $y = 2\sin^{-1}\frac{x}{3} - 3$

Evaluate the integral.

50) $\int \coth(5x)\,dx$ 50) _____

A) $\ln|\sinh 5x| + C$ B) $5\ln\left|\sinh\frac{x}{5}\right| + C$

C) $\frac{1}{5}\operatorname{csch}^2 5x + C$ D) $\frac{1}{5}\ln|\sinh 5x| + C$

Solve the problem.

51) Find the length of the segment of the curve $y = \frac{1}{2}\cosh 2x$ from x=0 to $x = \ln\sqrt{5}$. 51) _____

A) 5 B) $\frac{6}{5}$ C) $\frac{1}{4}\left(\sqrt{5} - \frac{1}{\sqrt{5}}\right)$ D) $\frac{13}{10}$

Express the value of the inverse hyperbolic function in terms of natural logarithms.

52) $\cosh^{-1} 4$ 52) _____

A) $\ln(4 + \sqrt{17})$ B) $\ln(8)$ C) $\ln(4 - \sqrt{15})$ D) $\ln(4 + \sqrt{15})$

Evaluate the integral.

53) $\int \frac{7 + 14x}{36 + 49x^2}\,dx$ 53) _____

A) $\frac{1}{6}\tan^{-1}\left(\frac{7}{6}x\right) + \frac{1}{7}\ln\left|36 + 49x^2\right| + C$ B) $\frac{1}{6}\tan^{-1}\left(\frac{7}{6}x\right) + \frac{1}{6}\sin^{-1}\left(\frac{7}{6}x\right) + C$

C) $98x + \frac{1}{7}\ln\left|36 + 49x^2\right| + C$ D) $\sin^{-1}\left(\frac{7}{6}x\right) + \frac{1}{7}\ln\left|36 + 49x^2\right| + C$

Solve the initial value problem.

54) $\frac{d^2y}{dx^2} = 3e^{-x}$, $y(0) = 1$, $y'(0) = 0$ 54) _____

A) $y = 3e^{-x} - 3x + 4$ B) $y = -3e^{-x} + C$ C) $y = 3e^{-x} + 3x - 2$ D) $y = 3e^{-x} + 1$

Express the value of the inverse hyperbolic function in terms of natural logarithms.

55) $\sinh^{-1}\left(\frac{-3}{4}\right)$ 55) _____

A) $\ln\left(\frac{-3}{4} + \sqrt{10}\right)$ B) $\ln\frac{1}{2}$ C) $\ln 2$ D) $\ln(4)$

Simplify the expression.

56) $6\ln\sqrt[6]{e}$ 56) _____

A) 6 B) 1 C) $\frac{1}{6}$ D) e

Answer the question appropriately.

57) Find the absolute maximum value of $f(x) = e^x - 2.3x$ on [0, 2]. 57) _____

A) $2.3 - 2.3\ln 2.3$ B) $2.3 - \ln 2.3$ C) $e^2 - 4.6$ D) 1

A value of sinh x or cosh x is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

58) $\cosh x = \frac{17}{8}$, $x < 0$, $\operatorname{sech} x =$ 58) _____

A) $\frac{15}{17}$ B) $-\frac{289}{64}$ C) $\frac{8}{17}$ D) $-\frac{8}{15}$

Determine whether the integration formula is correct.

59) $\int \coth^{-1}\sqrt{x}\,dx = (x - 1)\coth^{-1}\sqrt{x} + \sqrt{x} + C$ 59) _____

A) No B) Yes

60) $\int 2x\ln(1 + x^2)\,dx = (1 + x^2)\ln(1 + x^2) - (1 + x^2) + C$ 60) _____

A) No B) Yes

Find the limit.

61) $\lim_{x \to -1^+} \cos^{-1} x$ 61) _____

A) π B) 1 C) -1 D) 0

Evaluate the integral.

62) $\int_0^{\ln\sqrt{3}/3} \frac{3e^{3x}\,dx}{1 + e^{6x}}$ 62) _____

A) $-\frac{\pi}{6}$ B) $\frac{\pi}{12}$ C) $\frac{\pi}{6}$ D) $-\frac{\pi}{12}$

Solve the problem.

63) Find the equation that satisfies the following conditions: 63) _____

$\frac{dy}{dx} = 5 + \frac{1}{x}$, $y(1) = 12$

A) $y = \ln|x| + 12$ B) $y = x + \ln|x| + 11$

C) $y = 5x + \ln|x| + 6$ D) $y = 5x + \ln|x| + 7$

A value of sinh x or cosh x is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

64) $\cosh x = \frac{13}{5}$, $x < 0$, $\coth x =$ 64) _____

A) $-\frac{5}{13}$ B) $\frac{12}{13}$ C) $-\frac{13}{12}$ D) $-\frac{12}{5}$

Find the limit.

65) $\lim_{x \to \infty} \cot^{-1} x$ 65) _____

A) 0 B) ∞ C) $\frac{\pi}{2}$ D) π

Rewrite the following without using trigonometric or inverse trigonometric functions.

66) $\cos(\sin^{-1} u)$ 66) _____

A) $\sqrt{1 - u^2}$ B) $\sqrt{u^2 - 1}$ C) $\frac{\sqrt{u^2 + 1}}{u}$ D) $\sqrt{u^2 + 1}$

Evaluate the integral.

67) $\int \frac{dx}{\sqrt{-x^2 - 8x - 15}}$ 67) _____

A) $-\sin^{-1}(x + 4) + C$ B) $\frac{1}{2}\sqrt{-x^2 - 8x - 15} + C$

C) $\sin^{-1}(x + 4) + C$ D) $\cos^{-1}(x + 4) + C$

Solve the initial value problem.

68) $\frac{dy}{dt} = e^{-t}\sec^2(\pi e^{-t})$, $y(-\ln 7) = \frac{2}{\pi}$ 68) _____

A) $y = \cot(\pi e^{-t}) + 2$ B) $y = \frac{\tan(\pi e^{-t}) + 9}{\pi}$

C) $y = \frac{-e^{-t}\cot(\pi e^{-t}) + 1}{\pi}$ D) $y = \frac{-\tan(\pi e^{-t}) + 2}{\pi}$

Find the limit.

69) $\lim_{x \to 0} \frac{\tan^{-1} 8x^2}{7x^2}$ 69) _____

A) $\frac{1}{7}$ B) 1 C) $\frac{8}{7}$ D) -8

Evaluate the integral.

70) $\int \operatorname{sech}^2(8x - 2)\,dx$ 70) _____

A) $\frac{1}{8}\coth(8x - 2) + C$ B) $\frac{8}{3}\operatorname{sech}^3(8x - 2) + C$

C) $\tanh(8x - 2) + C$ D) $\frac{1}{8}\tanh(8x - 2) + C$

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

71) $y = (\cos x)^x$ 71) _____

A) $\ln\cos x - x\tan x$ B) $(\cos x)^x(\ln\cos x - x\tan x)$

C) $(\cos x)^x(\ln\cos x + x\cot x)$ D) $\ln x(\cos x)^{x-1}$

Evaluate exactly.

72) $\sin\left(\cos^{-1}\left(\frac{1}{2}\right)\right)$ 72) _____

A) $\frac{-1}{2}$ B) 1 C) $\frac{-\sqrt{3}}{2}$ D) $\frac{\sqrt{3}}{2}$

Simplify the expression.

73) $9^{\log_3 x}$ 73) _____

A) $\sqrt{x}$ B) x^2 C) 2 D) 3^2

Rewrite the expression in terms of exponentials and simplify the results.

74) $\sinh(2\ln 3x)$ 74) _____

A) $6x$ B) $\frac{1}{2}\left(9x^2 - \frac{1}{9x^2}\right)$ C) $\frac{3}{2}\left(x - \frac{1}{x}\right)$ D) $\frac{1}{2}\left(9x^2 + \frac{1}{9x^2}\right)$

Find the derivative of y with respect to x.

75) $y = \sin^{-1}\left(\frac{6x + 9}{11}\right)$ 75) _____

A) $-\frac{6}{\sqrt{121 - (6x + 9)^2}}$ B) $\frac{6}{1 + (6x + 9)^2}$

C) $\frac{66}{\sqrt{1 + (6x + 9)^2}}$ D) $\frac{6}{\sqrt{121 - (6x + 9)^2}}$

Evaluate the integral.

76) $\int \frac{dx}{\sqrt{-x^2 - 10x - 16}}$ 76) _____

A) $\sin^{-1}\left(\frac{x + 5}{3}\right) + C$ B) $-\sin^{-1}\left(\frac{x + 5}{3}\right) + C$

C) $\frac{1}{2}\sqrt{-x^2 - 10x - 16} + C$ D) $\cos^{-1}\left(\frac{x + 5}{3}\right) + C$

Solve the problem.

77) The pH of the blood of a small mammal usually falls between 7.24 and 7.46. Find the corresponding bounds of $[H_3O^+]$. 77) _____

A) $\log_{10} 7.24$ and $\log_{10} 7.46$ B) $10^{7.46}$ and $10^{7.24}$

C) $10^{-7.46}$ and $10^{-7.24}$ D) $e^{-7.46}$ and $e^{-7.24}$

Find the slowest growing and the fastest growing functions as $x \to \infty$.

78) $y = x^2 + 9x$
$y = x^2$
$y = \sqrt{x^4 + x^2}$
$y = 3x^2$

A) Slowest: $y = \sqrt{x^4 + x^2}$
Fastest: $y = 3x^2$

B) Slowest: $y = x^2$ and $y = 3x^2$ grow at the same rate.
Fastest: $y = \sqrt{x^4 + x^2}$

C) Slowest: $y = \sqrt{x^4 + x^2}$
Fastest: $y = x^2 + 9x$

D) They all grow at the same rate.

78) _____

Evaluate the integral.

79) $\int \frac{\operatorname{csch}(\ln x)\coth(\ln x)}{5x}\,dx$

A) $\frac{-1}{5}\operatorname{csch}(\ln x) + C$

B) $x \operatorname{csch}(\ln x) + C$

C) $\frac{1}{5}\operatorname{csch}(\ln x) + C$

D) $5 \operatorname{sech}(\ln x) + C$

79) _____

Use logarithmic differentiation to find the derivative of y.

80) $y = (x^3 + 1)^3(x - 1)^5x^4$

A) $\frac{9x^2}{x^3 + 1} + \frac{5}{x - 1} + \frac{4}{x}$

B) $(x^3 + 1)^3(x - 1)^5x^4(3\ln(x^3 + 1) + 5\ln(x - 1) + 4\ln x)$

C) $(x^3 + 1)^3(x - 1)^5x^4\left(\frac{13}{x} + \frac{5}{x - 1}\right)$

D) $(x^3 + 1)^3(x - 1)^5x^4\left(\frac{9x^2}{x^3 + 1} + \frac{5}{x - 1} + \frac{4}{x}\right)$

80) _____

Find the inverse of the function.

81) $f(x) = \sqrt{x - 4}$

A) $f^{-1}(x) = x^2 + 4,\ x \geq 0$

B) $f^{-1}(x) = \sqrt{x + 4}$

C) Not a one–to–one function

D) $f^{-1}(x) = (x - 4)^2$

81) _____

Evaluate the integral.

82) $\int 3e^{-7x}\,dx$

A) $-\frac{1}{2}e^{-7x+1} + C$

B) $-\frac{3}{7}e^{-7x} + C$

C) $3e^{-7x} + C$

D) $-\frac{3}{14}e^{-7x^2} + C$

82) _____

83) $\int_0^{1/2} e^{\sin^{-1} 5x}\frac{5\,dx}{\sqrt{1 - x^2}}$

A) $e^{\pi/6} - 1$

B) $e^{1/2} - 1$

C) $\frac{5}{6}\pi$

D) $e^{\pi/6}$

83) _____

Rewrite the ratio as a ratio of natural logarithms and simplify.

84) $\frac{\log_{\sqrt{3}} x}{\log_{\sqrt{2}} x}$

A) $\frac{3}{2}$

B) $\frac{\ln 2}{\ln 3}$

C) $\sqrt{\frac{\ln 3}{\ln 2}}$

D) $\sqrt{\frac{3}{2}}$

84) _____

Find the formula for df^{-1}/dx.

85) $f(x) = \frac{1}{8}x + \frac{5}{16}$

A) $8x - \frac{5}{2}$

B) $x - \frac{5}{2}$

C) 8

D) $\frac{1}{8}$

85) _____

A value of sinh x or cosh x is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

86) $\sinh x = -\frac{8}{15}$, $\operatorname{sech} x =$

A) $\frac{15}{17}$

B) $\frac{64}{289}$

C) $\frac{17}{15}$

D) $-\frac{15}{8}$

86) _____

Evaluate the integral.

87) $\int_1^{\sqrt{2}} \frac{2\,dx}{x(\sec^{-1} x)\sqrt{1 - x^2}}$

A) $2 \ln \frac{4}{\pi}$

B) $2\left(1 - \frac{\pi}{4}\right)$

C) $\ln \frac{4}{\pi}$

D) 0

87) _____

Solve the problem.

88) A certain radioactive isotope decays at a rate of 3% per 100 years. If t represents time in years and y represents the amount of the isotope left, use the condition that $y = 0.97y_0$ to find the value of k in the equation $y = y_0e^{kt}$.

A) –0.00030

B) 0.00030

C) 0.02638

D) –0.03046

88) _____

Solve the initial value problem.

89) $\frac{dy}{dx} = \frac{8}{25 + x^2} + \frac{7}{\sqrt{1 - x^2}},\ y(0) = -4$

A) $y = \frac{8}{5}\tan^{-1}\frac{x}{5} + 7\sin^{-1} x$

B) $y = 8\cot^{-1} x - 7\sin^{-1} x$

C) $y = \frac{8}{5}\tan^{-1}\frac{x}{5} + 7\sin^{-1} x - 4$

D) $y = 8\tan^{-1} x - 7\sin^{-1} x - 4$

89) _____

Find the derivative of y with respect to the independent variable.

90) $y = \log_8\left(\frac{x^2}{12\sqrt{x+1}}\right)$

A) $\frac{1}{\ln 8}\left(\frac{12\sqrt{x+1}}{x^2}\right)$

B) $e^8\left(\frac{12\sqrt{x+1}}{x^2}\right)$

C) $\frac{1}{\ln 8}\left(\frac{2}{x} - \frac{1}{2(x+1)}\right)$

D) $\frac{1}{\ln 8}\left(\frac{2}{x^2} - \frac{1}{2\sqrt{x+1}}\right)$

90) _____

Use logarithmic differentiation to find the derivative of y.

91) $y = \sqrt[3]{\frac{(3x + 1)(x + 4)^2}{(x^3 + 6)(x + 7)}}$

A) $\frac{3}{3x + 1} + \frac{2}{x + 4} - \frac{3x^2}{x^3 + 6} - \frac{1}{x + 7}$

B) $\frac{1}{3}\sqrt[3]{\frac{(3x + 1)(x + 4)^2}{(x^3 + 6)(x + 7)}}\left(\frac{3}{3x + 1} + \frac{2}{x + 4} - \frac{3x^2}{x^3 + 6} - \frac{1}{x + 7}\right)$

C) $\frac{1}{3}(\ln(<f>x + 1) + 2\ln(x + 4) - \ln(x^3 + 6) - \ln(x + 7))$

D) $3\sqrt[3]{\frac{(3x + 1)(x + 4)^2}{(x^3 + 6)(x + 7)}}\left(\frac{3}{3x + 1} + \frac{2}{x + 4} - \frac{3x^2}{x^3 + 6} - \frac{1}{x + 7}\right)$

91) _____

Rewrite the expression in terms of exponentials and simplify the results.

92) $(\sinh 3x - \cosh 3x)^8$

A) $e^{24x} - e^{-24x}$

B) $-e^{-24x}$

C) e^{-3x^8}

D) e^{-24x}

92) _____

Simplify the expression.

93) $\log_6 \frac{1}{6}$

A) 6

B) 0

C) –1

D) 1

93) _____

Find the derivative of y with respect to x, t, or θ, as appropriate.

94) $y = \frac{\ln x}{x^6}$

A) $\frac{6\ln x - 1}{x^7}$

B) $\frac{1 - 6\ln x}{x^{12}}$

C) $\frac{1 + 6\ln x}{x^{12}}$

D) $\frac{1 - 6\ln x}{x^7}$

94) _____

Find the derivative of y with respect to the appropriate variable.

95) $y = (\theta^2 + 5\theta)\tanh^{-1}(\theta + 4)$

A) $(2\theta + 5)\tanh^{-1}(\theta + 4) - \frac{\theta}{\theta + 3}$

B) $(2\theta + 5) - \frac{1}{\theta + 15}$

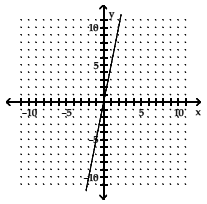
C) $(2\theta + 5)\tanh^{-1}(\theta + 4) - \frac{\theta^2 + 5\theta}{1 + (\theta + 4)^2}$

D) $-\frac{\theta}{\theta + 3}$

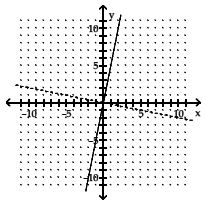
95) _____

Graph the inverse of the function plotted, on the same set of axes. Use a dashed curve for the inverse.

96)



A)



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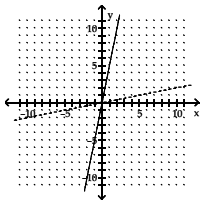
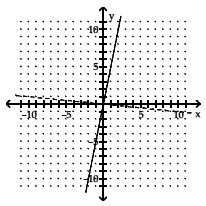
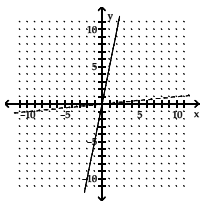


C)



D)



96) _____

Find the value of df^{-1}/dx at x = f(a).

97) $f(x) = x^3 - 9x^2 - 1,\ x \geq 6,\ a = 5$

A) –15

B) $-\frac{1}{101}$

C) $-\frac{1}{15}$

D) –1

97) _____

Determine whether the integration formula is correct.

98) $\int 3\tanh 3x\,dx = \ln \cosh^{-1} 3x + C$

A) Yes

B) No

98) _____

Solve the problem.

99) Find the area bounded by xy = 8, x = 1, x = 4, and y = 0. 99) _____

A) $4 \ln\left(\frac{1}{4}\right)$ B) $8 \ln(4)$ C) $8 \ln\left(\frac{1}{4}\right)$ D) $\ln(4)$

Use logarithmic differentiation to find the derivative of y.

100) $y = \frac{\sin x \cos^4 x \sec x}{x^{1/3}}$ 100) _____

A) $\frac{\sin x \cos^4 x \sec x}{x^{1/3}}\left(\cot x + 5\tan x - \frac{1}{3x}\right)$

B) $\frac{\sin x \cos^4 x \sec x}{x^{1/3}}\left(\cot x - 4\tan x + \frac{1}{\sin x \cos x} - \frac{1}{3x}\right)$

C) $\frac{\sin x \cos^4 x \sec x}{x^{1/3}}\left(2\cot x - 3\tan x - \frac{1}{3x}\right)$

D) $\frac{\sin x \cos^4 x \sec x}{x^{1/3}}\left(\cot x - 3\tan x - \frac{1}{3x}\right)$

Find the derivative of y with respect to the independent variable.

101) $y = (\ln 8\theta)^{\pi}$ 101) _____

A) $\frac{\pi}{\theta}(\ln 8\theta)^{\pi-1}$ B) $\frac{\pi}{8\theta}(\ln 8\theta)^{\pi-1}$ C) $\pi(\ln 8\theta)^{\pi-1}$ D) $(8\theta)^{\pi} \ln \pi$

Find the derivative of y with respect to the appropriate variable.

102) $y = \operatorname{csch}^{-1}\left(\frac{1}{8}\right)^{\theta}$ 102) _____

A) $\frac{\ln 8}{\left(\frac{1}{8}\right)^{\theta}\sqrt{1 - \left(\frac{1}{8}\right)^{\theta}}}$ B) $\frac{\left(\frac{1}{8}\right)^{\theta} \ln 8}{\sqrt{1 - \left(\frac{1}{8}\right)^{2\theta}}}$ C) $\frac{\ln \frac{1}{8}}{\sqrt{1 - \left(\frac{1}{8}\right)^{2\theta}}}$ D) $\frac{\ln 8}{\sqrt{1 - \left(\frac{1}{8}\right)^{2\theta}}}$

Determine whether the integration formula is correct.

103) $\int 9x \sin^{-1} 3x \, dx = \frac{18x^2 - 1}{4} \sin^{-1} 3x - \frac{3x\sqrt{1 - 9x^2}}{4} + C$ 103) _____

A) Yes B) No

Simplify the expression.

104) $\log_8 512$ 104) _____

A) 3 B) 8 C) 24 D) 512

Solve the equation for x.

105) $2^{\log_2 10} + 4^{\log_4 3} = 8^{\log_8 x}$ 105) _____

A) $\log_{10} 3$ B) 30 C) $\frac{15}{4}$ D) 13

Use logarithmic differentiation to find the derivative of y.

106) $y = \frac{x \cos x}{\sqrt{x + 4}}$ 106) _____

A) $\frac{1}{x} - \tan x - \frac{1}{2x + 8}$ B) $\frac{1}{2}\left(\frac{1}{x} + \frac{1}{\cos x} + \frac{1}{x + 4}\right)$

C) $\frac{x \cos x}{\sqrt{x + 4}}\left(\ln x + \ln \cos x - \frac{1}{2}\ln(x + 4)\right)$ D) $\frac{x \cos x}{\sqrt{x + 4}}\left(\frac{1}{x} - \tan x - \frac{1}{2x + 8}\right)$

Solve for y or k, as appropriate.

107) $e^{x^2} e^{4x+2} = e^{k}$ 107) _____

A) $4x^3 + 2x^2$ B) $x^2 + 4x + 2$ C) $x^2 - 4x - 2$ D) $\ln(x^2 + 4x + 2)$

Solve the problem.

108) The charcoal from a tree killed in a volcanic eruption contained 66.8% of the carbon-14 found in living matter. How old is the tree, to the nearest year? Use 5700 years for the half-life of carbon-14. 108) _____

A) 5700 years B) 2300 years C) 3318 years D) 1594 years

109) The amount of alcohol in the bloodstream, A, declines at a rate proportional to the amount, that is, $\frac{dA}{dt} = -kA$. If k = 0.3 for a particular person, how long will it take for his alcohol concentration to decrease from 0.10% to 0.05%? Give your answer to the nearest tenth of an hour. 109) _____

A) 3.5 hr B) 4.6 hr C) 2.3 hr D) 0.2 hr

Evaluate the integral in terms of natural logarithms.

110) $\int_0^{\sqrt{2}/2} \frac{32dx}{\sqrt{1 + 16x^2}}$ 110) _____

A) ln 11 B) 8 ln $(2\sqrt{2} + 3)$ C) 8 ln $(2\sqrt{2} + \sqrt{7})$ D) 32 ln $(2\sqrt{2} + 3)$

Answer the question appropriately.

111) Find the equation for the line through the origin and tangent to y = ln 4x. 111) _____

A) $y = \frac{4x}{e}$ B) y = (ln 4) x C) $y = -\frac{ex}{4}$ D) y = e

Evaluate the integral.

112) $\int 8x^{\sqrt{3}+5} \, dx$ 112) _____

A) $\frac{8x^{\sqrt{3}+4}}{\sqrt{3}+4} + C$ B) $\frac{8x^{\sqrt{3}+6}}{\sqrt{3}+6} + C$ C) $\frac{8x^{\sqrt{3}+5}}{\ln x} + C$ D) $\frac{8}{\sqrt{3}+6} + C$

Determine whether the integration formula is correct.

113) $\int 3x \tanh x^2 \, dx = \frac{3}{2} \ln(\cosh x^2) + C$ 113) _____

A) No B) Yes

Rewrite the ratio as a ratio of natural logarithms and simplify.

114) $\frac{\log_4 x}{\log_5 x}$ 114) _____

A) $\frac{\ln 4}{\ln 5}$ B) $\frac{5}{4}$ C) $\frac{\ln 5}{\ln 4}$ D) $\frac{4}{5}$

Rewrite the following without using trigonometric or inverse trigonometric functions.

115) $\sin\left(\sin^{-1} \frac{u}{\sqrt{5}}\right)$ 115) _____

A) $\frac{\sqrt{u^2 + 5}}{u^2 + 5}$ B) $\frac{u\sqrt{5}}{5}$ C) $u\sqrt{5}$ D) $\frac{u\sqrt{u^2 - 5}}{u^2 - 5}$

Evaluate the integral.

116) $\int_0^{\ln 5} \cosh x \, dx$ 116) _____

A) $\frac{12}{5}$ B) $-\frac{19}{10}$ C) $\frac{24}{5}$ D) $\frac{19}{10}$

Determine whether the integration formula is correct.

117) $\int \frac{3\tan^{-1} x}{x^2} dx = 3 \ln x - \frac{3}{2} \ln(1 + x^2) - \frac{3\tan^{-1} x}{x} + C$ 117) _____

A) No B) Yes

Evaluate the integral.

118) $\int_0^{\sqrt{3}/2} \frac{(\sin^{-1} x)^5}{\sqrt{1 - x^2}} \, dx$ 118) _____

A) $\frac{\pi^6}{4374}$ B) $\ln \frac{\pi^6}{6}$ C) $\frac{\pi^6}{729}$ D) $\frac{\pi^6}{279{,}936}$

Solve the equation for x.

119) $3^{\log_3(5)} - e^{\ln 17} = x^2 - 8^{\log_8(7x)}$ 119) _____

A) −4 or −3 B) 7 C) 4 or 3 D) No real solution

Determine whether the integration formula is correct.

120) $\int x \operatorname{csch}^{-1} x \, dx = \frac{x^2}{2}\operatorname{csch}^{-1} x + \frac{1}{2}\sqrt{1 + x^2} + C$ 120) _____

A) No B) Yes

Evaluate the integral.

121) $\int t\sqrt{10^{-1}} \, dt$ 121) _____

A) $\frac{t\sqrt{10^{-1}}}{\ln t} + C$ B) $\frac{t\sqrt{10^{-2}}}{\sqrt{10} - 2} + C$ C) $\frac{t\sqrt{10}}{\sqrt{10}} + C$ D) 1

Express as a single logarithm and, if possible, simplify.

122) $\ln(x^2 - 36) - \ln(x + 6)$ 122) _____

A) $\ln(x - 36)$ B) $\ln(x - 6)$ C) $\ln(x^2 - 6)$ D) $\ln(x + 6)$

Find the formula for df^{-1}/dx.

123) $f(x) = x^{5/3}$ 123) _____

A) $x^{2/5}$ B) $\frac{3}{5}x^{-2/5}$ C) $x^{3/5}$ D) $\frac{5}{3}x^{2/3}$

Express as a single logarithm and, if possible, simplify.

124) $\ln(7 \sec \theta) + \ln(7 \cos \theta)$ 124) _____

A) $\ln(1)$ B) ln (49)

C) $\ln(7 \sec \theta + 7 \cos \theta)$ D) $\ln(49 \cot \theta)$

Express the value of the inverse hyperbolic function in terms of natural logarithms.

125) $\coth^{-1}\left(\frac{4}{3}\right)$ 125) _____

A) 0 B) $\frac{1}{2} \ln 7$ C) $\frac{1}{2} \ln 28$ D) $\frac{1}{2} \ln -7$

Find the derivative of y.

126) $y = \sinh^2 8x$ 126) _____

A) 16 cosh 8x B) 2 sinh 8x cosh 8x

C) 16 sinh 8x cosh 8x D) 2 cosh 8x

Find the derivative of y with respect to x, t, or θ, as appropriate.

127) $y = \ln \frac{1 - x}{(x + 2)^4}$ 127) _____

A) $\frac{3x - 6}{(x + 2)^5}$ B) $\ln \frac{5x - 6}{(x + 2)^5}$ C) $\frac{3x - 6}{(x + 2)(1 - x)}$ D) $\frac{(x + 2)^4}{1 - x}$

Solve for y or k, as appropriate.

128) $e^{(\ln 0.6)k} = 0.4$ 128) _____

A) $\frac{e^{0.4}}{\ln 0.6}$ B) $\frac{\ln 0.4}{\ln 0.6}$ C) $\ln \frac{2}{3}$ D) $\frac{2}{3}$

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

129) $y = (9x + 10)^x$ 129) _____

A) $\ln(9x + 10) + \frac{9x}{9x + 10}$ B) $(9x + 10)^x\left(\ln(9x + 10) + \frac{9x}{9x + 10}\right)$

C) $(9x + 10)^x\left(\ln(9x + 10) + \frac{1}{10}\right)$ D) $x \ln(9x + 10)$

Find the derivative of y with respect to the independent variable.

130) $y = 4^{\ln 2t}$ 130) _____

A) $\frac{2 \ln 4}{t} 4^{\ln 2t}$ B) $\frac{\ln 4}{t} 4^{\ln 2t}$ C) $4^{\ln 2t}$ D) $\frac{2 \ln 4}{t}$

Evaluate the integral in terms of natural logarithms.

131) $\int_0^{9\pi} \frac{-\sin x\,dx}{\sqrt{1+\cos^2 x}}$ 131) _____

A) –2 B) $\ln\left(\frac{-1+\sqrt{2}}{1+\sqrt{2}}\right)$ C) ln 2 D) 0

Find the derivative of y.

132) $y = \text{csch}\frac{12x}{15}$ 132) _____

A) $\frac{12}{15}\text{csch}\frac{12x}{15}\coth\frac{12x}{15}$ B) $-\text{csch}\frac{12x}{15}\coth\frac{12x}{15}$

C) $-\frac{12}{15}\text{csch}\frac{12x}{15}\coth\frac{12x}{15}$ D) $\text{csch}\frac{12x}{15}\coth\frac{12x}{15}$

Solve the problem.

133) The intensity L(x) of light x ft beneath the surface of a lake satisfies the differential equation $\frac{dL}{dx} = -0.09L$. At what depth, to the nearest foot, is the intensity one tenth the intensity at the surface? 133) _____

A) 13 ft B) 17 ft C) 26 ft D) 38 ft

134) The solid lies between planes perpendicular to the x–axis at $x = -\sqrt{3}$ and $x = \sqrt{3}$. The cross sections are squares whose diagonals stretch from the x–axis to the curve $y = 5/\sqrt[4]{4 - x^2}$. 134) _____

A) $\frac{75}{2}\pi$ B) $\frac{25}{6}\pi$ C) $\frac{25}{3}\pi$ D) $\frac{50}{3}\pi$

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

135) $y = (\ln x)^{\ln x}$ 135) _____

A) $\frac{\ln(\ln x) + 1}{x}$ B) $\frac{(\ln x)^{\ln x}}{x}$

C) $\left(\frac{\ln(\ln x) + 1}{x}\right)(\ln x)^{\ln x}$ D) $\ln x \ln(\ln x)$

Find the value of df^{-1}/dx at x = f(a).

136) $f(x) = \frac{1}{5}x + 6,\ a = 3$ 136) _____

A) 6 B) $\frac{1}{5}$ C) $\frac{1}{6}$ D) 5

Find the inverse of the function.

137) $f(x) = (x - 7)^2,\ x \ge 7$ 137) _____

A) $f^{-1}(x) = \sqrt{x - 7},\ x \ge 7$ B) Not a one–to–one function

C) $f^{-1}(x) = -\sqrt{x} + 7,\ x \ge 0$ D) $f^{-1}(x) = \sqrt{x} + 7,\ x \ge 0$

Evaluate the integral.

138) $\int \frac{(\sin^{-1} x)^3}{\sqrt{1 - x^2}}\,dx$ 138) _____

A) $(\cos^{-1} x)^4 + C$ B) $3(\sin^{-1} x)^2 + C$ C) $\frac{(\sin^{-1} x)^4}{4} + C$ D) $\frac{\ln(\sin x)}{\sqrt{1 - x^2}} + C$

Solve the problem.

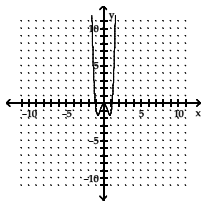
139) The velocity of a body of mass m falling from rest under the action of gravity is given by the equation $v = \sqrt{\frac{mg}{k}}\tanh\left(\sqrt{\frac{gk}{m}}t\right)$, where k is a constant that depends on the body's aerodynamic properties and the density of the air, g is the gravitational constant, and t is the number of seconds into the fall. Find the limiting velocity, $\lim_{t\to\infty} v$, of a 200 lb. skydiver (mg = 200) when k = .006. 139) _____

A) 0.01 ft/sec B) 182.57 ft/sec

C) There is no limiting speed. D) 57.74 ft/sec

Is the function graphed below one–to–one?

140) 140)



A) Yes B) No

Solve for y or k, as appropriate.

141) $e^{k/970} = t$ 141) _____

A) $970e^t$ B) $\frac{\ln t}{970}$ C) $\ln 970t$ D) $970 \ln t$

142) $e^{\sqrt{k}} = x^4$ 142) _____

A) $(\ln x^8)$ B) $16(\ln x)^2$ C) $\sqrt{4 \ln x}$ D) x^8

Express as a single logarithm and, if possible, simplify.

143) $\ln\cos\theta - \ln\left(\frac{\cos\theta}{6}\right)$ 143) _____

A) $\ln\left(\frac{1}{6}\right)$ B) $\ln\cos\theta$ C) $\ln 6$ D) $\ln\left(\frac{\cos^2\theta}{6}\right)$

Solve the problem.

144) An oil storage tank can be described as the volume generated by revolving the area bounded by $y = \frac{24.0}{\sqrt{64.0 + x^2}}$, x = 0, y = 0, x = 2 about the x–axis. Find the volume (in m^3) of the tank. 144) _____

A) 0.770 m^3 B) 457 m^3 C) 55.4 m^3 D) 18.5 m^3

Find the angle.

145) $\cot^{-1}(-1)$ 145) _____

A) $-\frac{\pi}{4}$ B) $-\frac{3\pi}{4}$ C) $\frac{3\pi}{4}$ D) $\frac{\pi}{4}$

Find the domain and range of the inverse of the given function.

146) $f(x) = \frac{1}{6}x - 8$ 146) _____

A) Domain: $(-\infty, 6) \cup (6, \infty)$; range: all real numbers

B) Domain: $(-\infty, 8) \cup (8, \infty)$; range: $(-\infty, 6) \cup (6, \infty)$

C) Domain and range: $(-\infty, 6) \cup (6, \infty)$

D) Domain and range: all real numbers

Use logarithmic differentiation to find the derivative of y.

147) $y = \frac{x\sqrt{x^5 + 3}}{(x + 8)^{2/3}}$ 147) _____

A) $\frac{x\sqrt{x^5 + 3}}{(x + 8)^{2/3}}\left(\ln x + \frac{1}{2}\ln(x^5 + 3) - \frac{2}{3}\ln(x + 8)\right)$ B) $\ln x + \frac{1}{2}\ln(x^5 + 3) - \frac{2}{3}\ln(x + 8)$

C) $\frac{1}{x} + \frac{5x^4}{2x^5 + 6} - \frac{2}{3x + 24}$ D) $\frac{x\sqrt{x^5 + 3}}{(x + 8)^{2/3}}\left(\frac{1}{x} + \frac{5x^4}{2x^5 + 6} - \frac{2}{3x + 24}\right)$

Find the derivative of y with respect to x.

148) $y = \sin^{-1}\left(\frac{1}{x^3}\right)$ 148) _____

A) $\frac{-3}{x\sqrt{x^6 - 1}}$ B) $\frac{-3x^3}{\sqrt{1 - x^6}}$ C) $\frac{-3}{x\sqrt{1 - x^6}}$ D) $\frac{-3}{1 + x^6}$

Solve the problem.

149) The velocity of a body of mass m falling from rest under the action of gravity is given by the equation $v = \sqrt{\frac{mg}{k}}\tanh\left(\sqrt{\frac{gk}{m}}t\right)$, where k is a constant that depends on the body's aerodynamic properties and the density of the air, g is the gravitational constant, and t is the number of seconds into the fall. Find the limiting velocity, $\lim_{t\to\infty} v$, of a 320 lb. skydiver (mg = 320) when k = .006. 149) _____

A) 0.00 ft/sec B) 73.03 ft/sec

C) 230.94 ft/sec D) There is no limiting speed.

Evaluate the integral in terms of natural logarithms.

150) $\int_{6/5}^{3/2} \frac{dx}{1 - x^2}$ 150) _____

A) $\frac{1}{2}\ln\left(-\frac{2}{11}\right)$ B) $\ln\left(\frac{3}{11}\right)$ C) $\ln 2$ D) $\frac{1}{2}\ln\left(\frac{2}{11}\right)$

Evaluate the integral.

151) $\int_{\ln 2}^{\ln 6} 6e^t\cosh t\,dt$ 151) _____

A) $12 + 3 \ln 3$ B) $48 + 3 \ln 3$ C) $60 + 3 \ln 12$ D) $48 + \ln 4$

Use logarithmic differentiation to find the derivative of y.

152) $y = \sqrt[3]{\frac{x(x - 7)}{x^4 + 5}}$ 152) _____

A) $\frac{1}{x} + \frac{1}{x - 7} - \frac{4x^3}{x^4 + 5}$ B) $\frac{1}{3}\sqrt[3]{\frac{x(x - 7)}{x^4 + 5}}\left(\frac{1}{x} + \frac{1}{x - 7} - \frac{4x^3}{x^4 + 5}\right)$

C) $\frac{1}{3}(\ln x + \ln(x - 7) - \ln(x^4 + 5))$ D) $3\sqrt[3]{\frac{x(x - 7)}{x^4 + 5}}\left(\frac{1}{x} + \frac{1}{x - 7} - \frac{4x^3}{x^4 + 5}\right)$

Find the derivative of y with respect to x.

153) $y = 3\sin^{-1}(4x^4)$ 153) _____

A) $\frac{48x^3}{\sqrt{1 - 16x^4}}$ B) $\frac{48x^3}{\sqrt{1 - 16x^8}}$ C) $\frac{3}{\sqrt{1 - 16x^8}}$ D) $\frac{48x^3}{1 - 16x^8}$

Solve the problem.

154) Consider a linear function that is perpendicular to the line y = x. Will this function be its own inverse? Explain. 154) _____

A) Yes it will be its own inverse. If it is perpendicular to y = x it is symmetric with respect to y = x. Therefore it is its own inverse.

B) Yes it will be its own inverse. All perpendicular lines are their own inverses.

C) No it won't be its own inverse. The slope will be the same but the y–intercept will be different.

D) No it won't be its own inverse. Its inverse will be some other line that is perpendicular to it.

Evaluate the integral.

155) $\int_0^{\pi/2} 5^{\cos t}\sin t\,dt$ 155) _____

A) $\frac{5^{\pi/2} - 1}{\ln 5}$ B) $\frac{-4}{\ln 5}$ C) 4 D) $\frac{4}{\ln 5}$

Determine whether the integration formula is correct.

156) $\int x^2\cos^{-1} x\,dx = \frac{1}{3}\left(x^3\cos^{-1} x - \int \frac{x^3\,dx}{1 - x^2}\right) + C$ 156) _____

A) No B) Yes

Find the derivative of y with respect to the appropriate variable.

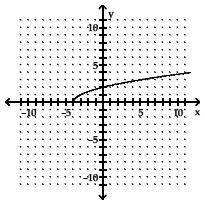
157) $y = 7 \tanh^{-1}(\cos x)$ 157) _____

A) $\ln\left(\frac{1}{\sqrt{1-x^2}}\right)\sin x$ B) $\frac{-7}{\cos x}$

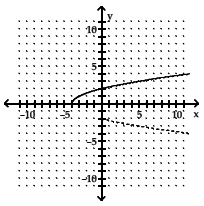
C) $\frac{-7\sin x}{1+\cos^2 x}$ D) $\frac{-7}{\sin x}$

Graph the inverse of the function plotted, on the same set of axes. Use a dashed curve for the inverse.

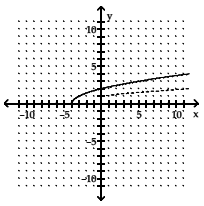
158) 158)



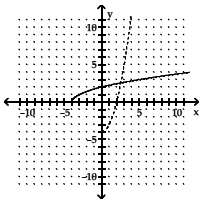
A)



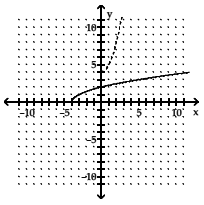
B)



C)



D)



Evaluate the integral.

159) $\int \operatorname{csch}^2\left(8-\frac{x}{10}\right)dx$ 159) _____

A) $\frac{10}{3}\operatorname{csch}^3\left(8-\frac{x}{10}\right)+C$ B) $-\coth\left(8-\frac{x}{10}\right)+C$

C) $10\tanh\left(8-\frac{x}{10}\right)+C$ D) $10\coth\left(8-\frac{x}{10}\right)+C$

160) $\int_0^{\pi/2} 8\cosh(\sin\theta)\cos\theta\,d\theta$ 160) _____

A) $4\left(e-\frac{1}{e}\right)$ B) $4\left(e+\frac{1}{e}\right)$

C) $8(e^{\pi/2}-e^{-\pi/2}-1)$ D) 4

Find the derivative of y with respect to x.

161) $y = \cos^{-1}(5x^2+4)$ 161) _____

A) $\frac{10x}{1+(5x^2+4)^2}$ B) $\frac{-10x}{\sqrt{1-(5x^2+4)^2}}$ C) $\frac{10x}{\sqrt{1-(5x^2+4)^2}}$ D) $\frac{5}{\sqrt{1+(5x^2+4)^2}}$

Find the domain and range of the inverse of the given function.

162) $f(x) = x^2+6,\ x \ge 0$ 162) _____

A) Domain: $(-\infty, 0]$; range: $(-\infty, 6]$ B) Domain: $[0, \infty)$; range: $[6, \infty)$

C) Domain: $[6, \infty)$; range: $[0, \infty)$ D) Domain and range: all real numbers

Evaluate the integral.

163) $\int_{\pi/4}^{\pi/2} \frac{2\sin 2\theta\,d\theta}{1+\cos^2 2\theta}$ 163) _____

A) $\frac{\pi}{8}$ B) $\frac{\pi}{4}$ C) $\frac{\pi}{2}$ D) π

Find the domain and range of the inverse of the given function.

164) $f(x) = x^3-4$ 164) _____

A) Domain: $[-4, \infty)$; range: all real numbers B) Domain: all real numbers; range: $[-4, \infty)$

C) Domain: $[0, \infty)$; range: $[0, \infty)$ D) Domain and range: all real numbers

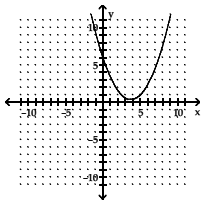
Evaluate the integral.

165) $\int_0^{\sqrt{2}/2} -e^{\cos^{-1}x}\frac{dx}{\sqrt{1-x^2}}$ 165) _____

A) $\frac{\pi}{2}$ B) $e^{\pi/4}-e^{\pi/2}$ C) $e^{\pi/4}$ D) 1

Is the function graphed below one–to–one?

166) 166)



A) No B) Yes

Find the derivative of y with respect to the appropriate variable.

167) $y = (1-8t)\coth^{-1}\sqrt{8t}$ 167) _____

A) $(1-8t)\coth^{-1}\sqrt{8t}$ B) $-4t$

C) $\frac{\sqrt{8}}{2t}-8\tanh^{-1}\sqrt{8t}$ D) $\frac{\sqrt{8}}{2t}-8\coth^{-1}\sqrt{8t}$

Evaluate the integral.

168) $\int_2^3 \frac{x^5+1}{x^6+6x}dx$ 168) _____

A) $\frac{1}{6}\ln\left|\frac{2}{3}\right|$ B) $\frac{1}{6}\ln\left|\frac{2}{21}\right|$ C) $\frac{1}{6}\ln\left|\frac{747}{76}\right|$ D) $\frac{2}{3}\ln\left|\frac{3}{2}\right|$

Solve the equation for x.

169) $5^{\log 5(x^2)} = 12e^{\ln x} - 7\,10^{\log 10(5)}$ 169) _____

A) -7 or -5 B) 7 or 5 C) 12 D) No real solution

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

170) $y = 2x^{x^2}$ 170) _____

A) $2x\ln 2x + x$ B) $2x^{x^2}(2x\ln 2x + x)$

C) $2x^{x^2}(2x\ln 2x)$ D) $x^2\ln 2x$

Solve for y or k, as appropriate.

171) $\ln(y-6) - \ln 7 = x + \ln x$ 171) _____

A) $7xe^x + 6$ B) $e^x + 7x + 6$ C) $2x + 13$ D) $(x+7)e^x + 6$

Simplify the expression.

172) $e^{\ln x + \ln y}$ 172) _____

A) $x+y$ B) xy C) $\ln x + \ln y$ D) $e^x e^y$

Evaluate the integral.

173) $\int \tanh\left(\frac{x}{5}\right)dx$ 173) _____

A) $5\ln\left(\cosh\frac{x}{5}\right)+C$ B) $5\operatorname{sech}^2\frac{x}{5}+C$

C) $\ln\left(\coth\frac{x}{5}\right)+C$ D) $5\ln\left(\sinh\frac{x}{5}\right)+C$

Solve the initial value problem.

174) $\frac{dy}{dt} = e^t\sin(e^t-5),\ y(\ln 5) = 0$ 174) _____

A) $y = e^t\cos(e^t-5)-5$ B) $y = \sin e^t - \sin 2$

C) $y = \cos(e^t-5)-1$ D) $y = -\cos(e^t-5)+1$

Find the derivative of y.

175) $y = \cosh x^7$ 175) _____

A) $7x^6\sinh x^7$ B) $-\sinh x^7$ C) $\sinh x^7$ D) $-7x^6\sinh x^7$

Use logarithmic differentiation to find the derivative of y.

176) $y = x(x+3)(x+1)$ 176) _____

A) $x(x+3)(x+1)(\ln x + \ln(x+3) + \ln(x+1))$ B) 1

C) $\frac{1}{x}+\frac{1}{x+3}+\frac{1}{x+1}$ D) $x(x+3)(x+1)\left(\frac{1}{x}+\frac{1}{x+3}+\frac{1}{x+1}\right)$

Find the derivative of y with respect to x.

177) $y = \tan^{-1}\frac{6x}{5}$ 177) _____

A) $\frac{25}{36x^2+25}$ B) $\frac{6}{\sqrt{25-36x^2}}$ C) $\frac{-30}{36x^2+25}$ D) $\frac{30}{36x^2+25}$

Solve the initial value problem.

178) $\frac{dy}{dx} = \frac{3}{\sqrt{1-x^2}},\ y(0) = 1$ 178) _____

A) $y = 3\sin^{-1}x$ B) $y = 3\sin^{-1}x + 1$

C) $y = 3\cos^{-1}x + \frac{2-3\pi}{2}$ D) $y = 3\cos^{-1}x - 2$

Rewrite the following without using trigonometric or inverse trigonometric functions.

179) $\sin\left(\sec^{-1}\frac{\sqrt{u^2+9}}{u}\right)$ 179) _____

A) $\frac{u\sqrt{u^2+3}}{u^2+3}$ B) $u\sqrt{3}$ C) $\frac{\sqrt{u^2+3}}{u^2+3}$ D) $\frac{3\sqrt{u^2+9}}{u^2+9}$

Evaluate the integral.

180) $\int_1^{e^8} \frac{4}{t}\,dt$ 180) _____

A) 8 B) $\frac{2}{2e^{16}} - \frac{1}{2}$ C) 32 D) $4 \ln 8$

Rewrite the following without using trigonometric or inverse trigonometric functions.

181) $\cos(\tan^{-1} u)$ 181) _____

A) $u\sqrt{u^2+1}$ B) $\frac{u\sqrt{u^2+1}}{u^2+1}$ C) $\frac{\sqrt{u^2+1}}{u^2+1}$ D) $\frac{\sqrt{u^2-1}}{u^2-1}$

Evaluate the integral.

182) $\int 5 \sinh(4x - \ln 8)\,dx$ 182) _____

A) $\frac{5}{4}\cosh(4x - \ln 8) + C$ B) $5\cosh(4x - \ln 8) + C$

C) $20\cosh(4x - \ln 8) + C$ D) $\frac{5}{32}\cosh 4x + C$

Determine whether the integration formula is correct.

183) $\int 4 \operatorname{sech} x\,dx = \tan^{-1}(\sinh 4x) + C$ 183) _____

A) No B) Yes

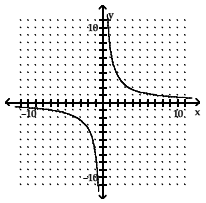
Find the derivative of y with respect to the appropriate variable.

184) $y = 8 \ln x + \sqrt{1-x^2}\,\operatorname{sech}^{-1} x$ 184) _____

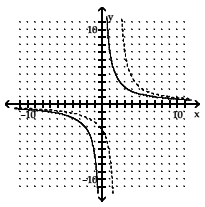
A) $8 \ln x - \operatorname{sech}^{-1} x$ B) $\frac{7}{x} - \frac{x \operatorname{sech}^{-1} x}{\sqrt{1-x^2}}$ C) $\frac{7}{x} - \frac{x \operatorname{sech}^{-1} x}{2\sqrt{1-x^2}}$ D) $\frac{8}{x} - \frac{\operatorname{sech}^{-1} x}{\sqrt{1-x^2}}$

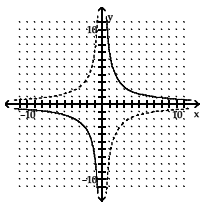
Graph the inverse of the function plotted, on the same set of axes. Use a dashed curve for the inverse.

185) 185)

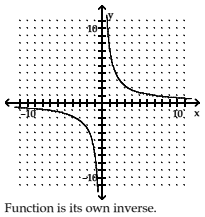


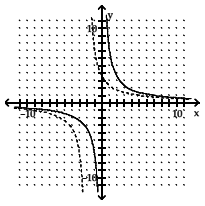
A) B)





C) D)





Function is its own inverse.

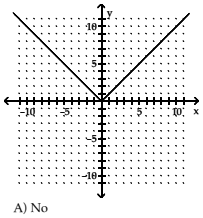
Evaluate the integral.

186) $\int_0^{1/3} \frac{5x\,dx}{\sqrt{25 - x^4}}$ 186) _____

A) $\frac{\pi}{8}$ B) $\frac{5}{2}\sin^{-1}\frac{1}{45}$ C) $\frac{\pi}{2}$ D) π

Is the function graphed below one–to–one?

187) 187)



A) No B) Yes

Find the slowest growing and the fastest growing functions as $x \to \infty$.

188) $y = 6x^{10}$ 188) _____

$y = e^x$

$y = e^{x-5}$

$y = xe^x$

A) Slowest: $y = 6x^{10}$
Fastest: $y = xe^x$

B) Slowest: $y = xe^x$
Fastest: $y = e^x$

C) Slowest: $y = e^{x-5}$
Fastest: $y = xe^x$

D) Slowest: $y = 6x^{10}$
Fastest: $y = e^x$ and $y = e^{x-5}$ grow at the same rate

Find the derivative of y with respect to x, t, or θ, as appropriate.

189) $y = \ln(10\theta e^{-\theta})$ 189) _____

A) $e^{\theta}\left(\frac{1}{\theta} + 1\right)$ B) $\ln(10e^{-\theta}(1-\theta))$ C) $\frac{1}{\theta} - 1$ D) $\frac{1}{10\theta e^{\theta}}$

Find $\frac{dy}{dx}$.

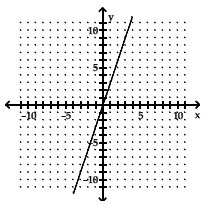
190) $e^{4y} = \cos(8x + y)$ 190) _____

A) $\frac{-8\sin(8x+y)}{4e^{4y} + \sin(8x+y)}$ B) $\ln\cos(8x + y)$

C) $\frac{-8\sin(8x+y) + 8}{4e^{4y} - 1}$ D) $\frac{\sin(8x+y)}{4e^{4y}}$

Is the function graphed below one–to–one?

191) 191)



A) No B) Yes

Solve for y or k, as appropriate.

192) $e^{2k} = 36$ 192) _____

A) $\frac{e^{36}}{2}$ B) $\ln 6$ C) $\ln 36$ D) $\ln 18$

Evaluate the integral in terms of natural logarithms.

193) $\int_0^{4/5} \frac{dx}{1 - x^2}$ 193) _____

A) $\frac{1}{2}\ln\left(\frac{1}{9}\right)$ B) $\frac{1}{2}\ln 9$ C) $\ln -3$ D) $\ln 17$

Find the derivative of y with respect to x.

194) $y = \sec^{-1}\left(\frac{6x+13}{1}\right)$ 194) _____

A) $\frac{-6}{(6x+13)\sqrt{(6x+13)^2 - 1}}$ B) $\frac{-6}{1 + (6x+13)^2}$

C) $\frac{6}{(6x+13)\sqrt{(6x+13)^2 - 1}}$ D) $\frac{6}{\sqrt{(6x+13)^2 - 13}}$

Find the limit.

195) $\lim_{x \to \infty} \sec^{-1} x$ 195) _____

A) ∞ B) 0 C) $\frac{\pi}{2}$ D) $-\frac{\pi}{2}$

Evaluate the integral.

196) $\int_0^6 (\sqrt{5} + 1)x^{\sqrt{5}}\,dx$ 196) _____

A) $x\sqrt{5} + 1 + C$ B) $6\sqrt{5} + 1 - 1$ C) $\frac{6\sqrt{5}}{\ln 6}$ D) $6\sqrt{5} + 1$

Find the derivative of y with respect to x, t, or θ, as appropriate.

197) $y = 8xe^x - 8e^x$ 197) _____

A) $8xe^x + 16e^x$ B) $8xe^x$ C) $8x$ D) $8e^x$

198) $y = e^{(10\sqrt{x} + x^4)}$ 198) _____

A) $(10\sqrt{x} + 4x^3)\ln(10\sqrt{x} + x^4)$ B) $\left(\frac{5}{\sqrt{x}} + 4x^3\right)e^{(10\sqrt{x} + x^4)}$

C) $e^{(5\sqrt{x} + 4x^3)}$ D) $10\sqrt{x} + 4x^3)\ e^{(10\sqrt{x} + x^4)}$

Evaluate the integral.

199) $\int_{-2}^{\frac{3\sqrt{2}}{2} - 2} \frac{-dx}{\sqrt{-x^2 - 4x + 5}}$ 199) _____

A) $-\frac{\pi}{4}$ B) $\frac{\sqrt{2}}{2} - \frac{\pi}{5}$ C) $\frac{\pi}{4}$ D) $-\frac{5\pi}{6}$

Find the domain and range of the inverse of the given function.

200) $f(x) = -\frac{6}{x}$ 200) _____

A) Domain: $(0, \infty)$; range: $(-\infty, 0)$
B) Domain: $(-\infty, 0) \cup (0, \infty)$; range: $(-\infty, 0)$
C) Domain and range: all real numbers
D) Domain and range: $(-\infty, 0) \cup (0, \infty)$

Simplify the expression.

201) $\log_{10} 10$ 201) _____

A) 0 B) 1 C) –1 D) 10

Evaluate the integral.

202) $\int \frac{8\,dx}{8 + 7x}$ 202) _____

A) $\ln|-8 - 7x| + C$
B) $\frac{4}{7}\ln|8 + 7x| + C$
C) $\frac{8}{7}\ln|-8 - 7x| + C$
D) $-8\ln|-8 - 7x| + C$

Determine whether the integration formula is correct.

203) $\int 8\,\text{sech}\,x\,dx = \sin^{-1}(1 - x^2) + C$ 203) _____

A) Yes B) No

Solve the problem.

204) Find the average value of the function $y = \frac{15}{\sqrt{36 - 25x^2}}$ over the interval from $x = 0$ to $x = \frac{3}{5}$. 204) _____

A) $\frac{1}{3}\pi$ B) $\frac{1}{6}\pi$ C) $\frac{1}{2}\pi$ D) $\frac{5}{6}\pi$

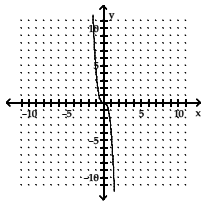
Solve the equation for x.

205) $\ln e + 6^{-2\log_6(x)} = \frac{1}{x}\log_7(49)$ 205) _____

A) $\frac{1}{42}$ B) –1 C) 1 D) No real solution

Is the function graphed below one–to–one?

206) 206)



A) No B) Yes

Answer the question appropriately.

207) Find the area of the "triangular" region in the first quadrant that is bounded above by the curve $y = e^{3x}$, below by the curve $y = e^{x}$, and on the right by the line $x = \ln 4$. 207) _____

A) $\frac{52}{3}$ B) $4 \ln 4$ C) $\frac{80}{3}$ D) 18

Evaluate the integral.

208) $\int \left(e^{2x} - e^{-2x}\right) dx$ 208) _____

A) $\frac{1}{2}\left(e^{2x} + e^{-2x}\right) + C$
B) $\frac{e}{2}\left(e^{2x} + e^{-2x}\right) + C$
C) $\frac{1}{2}\left(e^{x} - e^{-x}\right) + C$
D) $\frac{1}{2}\left(e^{2x} - e^{-2x}\right) + C$

Evaluate the integral in terms of natural logarithms.

209) $\int_1^{e^4} \frac{2\,dx}{x\sqrt{1 + (\ln x)^2}}$ 209) _____

A) $2 \ln (4 + \sqrt{17})$ B) 4 C) $2 \ln (1 + \sqrt{2})$ D) $\ln (4 + \sqrt{17})$

Evaluate the integral.

210) $\int \frac{dt}{t^2 + 12t + 40}$ 210) _____

A) $\tan^{-1}(t - 6) + C$
B) $\frac{1}{2}\tan^{-1}\left(\frac{t + 6}{2}\right) + C$
C) $2\tan^{-1}\left(\frac{t + 6}{2}\right) + C$
D) $-6t + C$

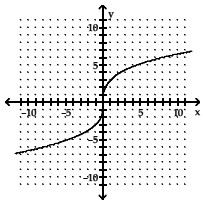
Answer the question appropriately.

211) Find the absolute minimum value of $f(x) = e^{x} - 3x$ on $[0, 2]$. 211) _____

A) $e^2 - 6$ B) $3 - 3 \ln 3$ C) $3 - \ln 3$ D) 1

Is the function graphed below one–to–one?

212) 212)



A) No B) Yes

Simplify the expression.

213) $\log_7 \frac{1}{49}$ 213) _____

A) –7 B) 7 C) –2 D) 2

Solve the problem.

214) Find the derivative of the inverse of the function $f(x) = mx$, where m is a nonzero constant. 214) _____

A) $\frac{mx^2}{2}$ B) 1 C) $\frac{1}{m}$ D) m

Evaluate the integral.

215) $\int_{-2/7}^{-\sqrt{2/7}} \frac{dt}{t\sqrt{49t^2 - 1}}$ 215) _____

A) $-\frac{\pi}{6}$ B) $\frac{\pi}{12}$ C) $\frac{\pi}{6}$ D) $-\frac{\pi}{12}$

216) $\int \frac{8\,dx}{\sqrt{9 - 64x^2}}$ 216) _____

A) $\frac{1}{3}\tan^{-1}\left(\frac{8}{3}x\right) + C$
B) $\sin^{-1}\left(\frac{8}{3}x\right) + C$
C) $\tan^{-1}\left(\frac{8}{3}x\right) + C$
D) $\frac{1}{3}\sin^{-1}\left(\frac{8}{3}x\right) + C$

Solve the problem.

217) Find the volume of the solid that is generated by revolving the area bounded by the x–axis, the curve $y = \sqrt{\frac{4x}{x^2 + 1}}$, $x = 1$, and $x = 6$ about the x–axis. 217) _____

A) $2 \ln \left(\frac{37}{2}\right)$ B) $1\pi \ln \left(\frac{2}{37}\right)$ C) $2\pi \ln \left(\frac{37}{2}\right)$ D) $4\pi \ln \left(\frac{2}{37}\right)$

Find the angle.

218) $\cos^{-1} -1$ 218) _____

A) $-\frac{\pi}{2}$ B) $\frac{1}{\pi}$ C) 0 D) π

Evaluate the integral.

219) $\int_0^{\ln 3} e^{-t} \sinh t\,dt$ 219) _____

A) $\ln \frac{3}{2} - \frac{2}{9}$ B) $\frac{\ln 3}{2} + 2$ C) $\frac{\ln 3}{2} + \frac{1}{36}$ D) $\frac{\ln 3}{2} - \frac{2}{9}$

220) $\int \frac{e^{1/x}}{4x^2} dx$ 220) _____

A) $-\frac{e^{1/x}}{4} + C$ B) $\frac{e^{-1/x}}{4} + C$ C) $\frac{e^{1/x}}{4} + C$ D) $-4\,e^{1/x} + C$

Simplify the expression.

221) $\ln\left(e^{10x}\right)$ 221) _____

A) 10x B) $\frac{1}{10}$ C) 10 D) e^{10}

Evaluate the integral.

222) $\int_1^2 9x2x^3\,dx$ 222) _____

A) 762 B) $\frac{762}{\ln 2}$ C) $\frac{3}{\ln x} + C$ D) $\frac{18}{\ln 2}$

Solve the initial value problem.

223) $\frac{dy}{dx} = \frac{7}{8 + x^2} + \frac{5}{x\sqrt{x^2 - 1}}$, $y(2) = -1$ 223) _____

A) $y = \frac{7}{4}\sqrt{2}\tan^{-1}\frac{\sqrt{2}x}{4} + 5\sec^{-1}x - 1 - \frac{5\pi}{3} - \frac{7}{16}\pi\sqrt{2}$
B) $y = \frac{7}{8}\tan^{-1}\frac{x}{8} + 5\sin^{-1}x$
C) $y = \tan^{-1}\frac{\sqrt{2}x}{4} + \sec^{-1}x - 3$
D) $y = \frac{7}{4}\sqrt{2}\tan^{-1}\frac{\sqrt{2}x}{4} + 5\sec^{-1}x - 1$

Find the value of df^{-1}/dx at $x = f(a)$.

224) $f(x) = 4x^2$, $x \geq 0$, $a = 2$ 224) _____

A) $\frac{1}{8}$ B) 16 C) $\frac{1}{16}$ D) $\frac{3}{32}$

Simplify the expression.

225) $7^{\log_7(9x)}$ 225) _____

A) 1 B) 9x C) 7^{9x} D) 7

Determine whether the integration formula is correct.

226) $\int x^4 \cos^{-1} 4x\,dx = \frac{x^5}{5}\cos^{-1} 4x + \frac{4}{5}\int \frac{x^5\,dx}{\sqrt{1-16x^2}} + C$ 226) _____

A) No B) Yes

Find the domain and range of the inverse of the given function.

227) $f(x) = (7x - 4)^3$ 227) _____

A) Domain: [7, ∞); range: [0, ∞) B) Domain and range: all real numbers

C) Domain: [0, ∞); range: all real numbers D) Domain: [4, ∞); range: [0, ∞)

Solve the initial value problem.

228) $\frac{dy}{dx} = \frac{4}{1+x^2} - \frac{3}{\sqrt{1-x^2}}$, $y(0) = -3$ 228) _____

A) $y = 4\tan^{-1} x - 3$ B) $y = 4\tan^{-1} x - 3\sin^{-1} x - 3$

C) $y = 4\tan^{-1} x - 3\sin^{-1} x - 1$ D) $y = 4\cot^{-1} x - 3\sin^{-1} x$

Determine whether the integration formula is correct.

229) $\int (\sin^{-1} x)^2 - 6\,dx = x(\sin^{-1} x)^2 - 8x + 2\sqrt{1-x^2}\sin^{-1} x + C$ 229) _____

A) No B) Yes

Find $\frac{dy}{dx}$.

230) $\tan y = e^x + \ln 8x$ 230) _____

A) $\frac{xe^x + 8}{x\sec^2 y}$ B) $e^x + \frac{8}{x} - \sec^2 y$ C) $\frac{e^x + 8}{\sin^2 y}$ D) $\frac{xe^x + 8}{x\cot y}$

Solve the problem.

231) The region between the curve $y = \frac{1}{x^2}$ and the x–axis from $x = \frac{1}{5}$ to $x = 5$ is revolved about the y–axis to generate a solid. Find the volume of the solid. 231) _____

A) $2\pi \ln 5$ B) $\pi \ln 5 - \pi$ C) $4\pi \ln 5$ D) $2\pi \ln 5 - \pi$

Find $\frac{dy}{dx}$.

232) $\sin y = 6x + 3y$ 232) _____

A) $\frac{6+3}{\cos y}$ B) $6 + 3 - \cos y$ C) $\frac{1}{\sin y - 3}$ D) $\frac{6}{\cos y - 3}$

Find the derivative of y.

233) $y = \ln(\sinh 2x)$ 233) _____

A) $\frac{1}{\sinh 2x}$ B) $2\coth 2x$ C) $\coth 2x$ D) $2\operatorname{csch} 2x$

Answer the question appropriately.

234) Find the area of the region between the curve $y = 2^{2-x}$ and the interval $0 \le x \le 2$ on the x–axis. 234) _____

A) $\frac{4}{\ln 2}$ B) $\frac{3}{\ln 2}$ C) $3 \ln 2$ D) 4

Use logarithmic differentiation to find the derivative of y.

235) $y = \cos x\sqrt{3x+8}$ 235) _____

A) $\cos x\sqrt{3x+8}\left(\ln\cos x + \frac{1}{2}\ln(3x+8)\right)$ B) $\cos x\sqrt{3x+8}\left(\frac{1}{\sin x \cdot \cos x} + \frac{3}{3x+8}\right)$

C) $\frac{-6\tan x - 13\tan x}{3x+16}$ D) $\cos x\sqrt{3x+8}\left(\tan x + \frac{3}{2(3x+8)}\right)$

Find the derivative of y with respect to the independent variable.

236) $y = \log_2\left(\left(\frac{x+2}{x-2}\right)^{\ln 2}\right)$ 236) _____

A) $\frac{1}{(x-2)^2}$ B) $\frac{-4}{(x+2)(x-2)}$ C) $\frac{-2}{x+2}$ D) $\left(\frac{1}{\ln 2}\right)\left(\frac{x+2}{x-2}\right)^{\ln 2}$

A value of sinh x or cosh x is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

237) $\sinh x = \frac{4}{3}$, $\tanh x =$ 237) _____

A) $\frac{5}{4}$ B) $\frac{5}{3}$ C) $\frac{4}{5}$ D) $-\frac{4}{5}$

Find the derivative of y with respect to x, t, or θ, as appropriate.

238) $y = \ln(\ln 2x)$ 238) _____

A) $\frac{1}{x}$ B) $\frac{1}{x\ln 2x}$ C) $\frac{1}{\ln 2x}$ D) $\frac{1}{2x}$

Simplify the expression.

239) $\log_e e^{|x-16|}$ 239) _____

A) $|x - 16|$ B) $\log_e 16$ C) $\log|x - 16|$ D) $16\log_e e$

Rewrite the expression in terms of exponentials and simplify the results.

240) $14\cosh(\ln x)$ 240) _____

A) 0 B) 7x C) $7(e^x + e^{-x})$ D) $7\left(x + \frac{1}{x}\right)$

Evaluate the integral.

241) $\int_{\ln 2}^{\ln 4} \coth 7x\,dx$ 241) _____

A) $\frac{1}{7}\ln 2$ B) $\frac{9}{56}$ C) $\frac{1}{7}\ln\frac{5}{2}$ D) $\ln\frac{5}{2}$

242) $\int_1^e 7x^{\ln 6 - 1}\,dx$ 242) _____

A) $\frac{5-e}{\ln 7}$ B) $\frac{5}{7\ln x} + C$ C) $\frac{35}{\ln 6}$ D) 35

Find the formula for df^{-1}/dx.

243) $f(x) = (8 - x)^3$ 243) _____

A) $\frac{-1}{3x^{2/3}}$ B) $-3(8-x)^2$ C) $8 - x^{1/3}$ D) $x^{2/3}$

Find the derivative of y with respect to x, t, or θ, as appropriate.

244) $y = \ln 5x^2$ 244) _____

A) $\frac{2}{x}$ B) $\frac{2x}{x^2+5}$ C) $\frac{1}{2x+5}$ D) $\frac{10}{x}$

Find $\frac{dy}{dx}$.

245) $e^{2x} = \sin(x + 6y)$ 245) _____

A) $\frac{e^{2x}}{6\cos(x+6y)}$ B) $\frac{2e^{2x}}{6\cos(x+6y)} - 1$

C) $\ln\sin(x + 6y)$ D) $\frac{2e^{2x} - \cos(x+6y)}{6\cos(x+6y)}$

Solve the initial value problem.

246) $\frac{dy}{dx} = e^{9x}\cos e^{9x}$, $y(0) = 0$ 246) _____

A) $y = \frac{1}{9}\sin x$ B) $y = -\frac{1}{9}\sin e^{9x} + \frac{1}{9}\sin 1$

C) $y = \frac{1}{9}\sin e^{9x} - \frac{1}{9}$ D) $y = \frac{1}{9}\sin e^{9x} - \frac{1}{9}\sin 1$

Rewrite the following without using trigonometric or inverse trigonometric functions.

247) $\sin(\tan^{-1} u)$ 247) _____

A) $\frac{\sqrt{u^2+1}}{u^2+1}$ B) $u\sqrt{u^2+1}$ C) $\frac{u\sqrt{u^2+1}}{u^2+1}$ D) $\frac{u\sqrt{u^2-1}}{u^2-1}$

Solve the initial value problem.

248) $\frac{dy}{dx} = \frac{10}{1+x^2}$, $y(0) = -2$ 248) _____

A) $y = 10\sin^{-1} x - 2$ B) $y = 10\tan^{-1} x - 2$

C) $y = 10\cot^{-1} x - 12$ D) $y = 10\tan^{-1} x$

Solve the problem.

249) A certain radioactive isotope decays at a rate of 2% per 100 years. If t represents time in years and y represents the amount of the isotope left then the equation for the situation is $y = y_0 e^{-0.0002t}$. In how many years will there be 93% of the isotope left? 249) _____

A) 253 years B) 350 years C) 363 years D) 700 years

Solve the initial value problem.

250) $\frac{d^2y}{dt^2} = 2 - e^{-t}$, $y(1) = \frac{-1}{e}$, $y'(0) = -1$ 250) _____

A) $y = t^2 - e^{-t} - 2t + 1$ B) $y = t^2 - e^{-t} - 1t$

C) $y = t^2 - e^{-t}$ D) $y = 2t^2 + e^{-t} - 2t + 0 - \frac{2}{e}$

Evaluate the integral.

251) $\int_0^{\pi/8} (1 + e^{\tan 2x})\sec^2 2x\,dx$ 251) _____

A) 2e B) $-\frac{e}{2}$ C) $\frac{e}{2}$ D) e

Solve the initial value problem.

252) $\frac{d^2y}{dt^2} = e^{2t} + 4\sin t$, $y(0) = 0$, $y'(0) = 4$ 252) _____

A) $y = \frac{e^{2t}}{4} - 4\sin t + \frac{15}{2}t - \frac{1}{4}$ B) $y = \frac{e^{2t}}{4} - 4\sin t$

C) $y = e^{2t} - 4\sin t + 7t - \frac{1}{4}$ D) $y = \frac{e^{2t}}{4} - 4\sin t + 4t - \frac{1}{4}$

Find the derivative of y with respect to x, t, or θ, as appropriate.

253) $y = \ln 7x$ 253) _____

A) $\frac{1}{7x}$ B) $-\frac{1}{7x}$ C) $-\frac{1}{x}$ D) $\frac{1}{x}$

Find the derivative of y with respect to the appropriate variable.

254) $y = 9\sinh^{-1}(\ln x)$ 254) _____

A) $\frac{9}{1+(\ln x)^2}$ B) $\frac{9}{x\sqrt{1+(\ln x)^2}}$ C) $\frac{9}{\sqrt{1+\left(\frac{1}{x}\right)^2}}$ D) $\frac{9}{x\sqrt{(\ln x)^2 - 1}}$

Find the derivative of y.

255) $y = 4t^3\tanh\left(\frac{1}{t^2}\right)$ 255) _____

A) $12t^2\tanh\left(\frac{1}{t^2}\right) - 8\operatorname{sech}\left(\frac{1}{t^2}\right)$ B) $12t^2\tanh\left(\frac{1}{t^2}\right) - 8\operatorname{sech}^2\left(\frac{1}{t^2}\right)$

C) $12t^2\tanh\left(\frac{1}{t^2}\right) + 8\operatorname{sech}^2\left(\frac{1}{t^2}\right)$ D) $12t^2\tanh\left(\frac{1}{t^2}\right) - 4\operatorname{sech}^2\left(\frac{1}{t^2}\right)$

Answer the question appropriately.

256) Find the linearization of $f(x) = 2^x$ at $x = 1$. Round the coefficients to 2 decimal places. 256) _____

A) $f(x) = 0.69x + 1.31$ B) $f(x) = 1.39x + 1$

C) $f(x) = 1.39x + 0.61$ D) $f(x) = 2.89x - 0.89$

Simplify the expression.

257) $e^{\ln 11x - \ln 3}$ 257) _____

A) $\ln \frac{11x}{3}$ B) $\frac{3x}{11}$ C) $33x$ D) $\frac{11x}{3}$

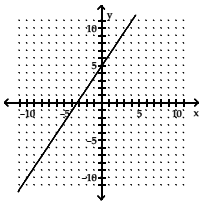
Evaluate the integral.

258) $\int_{7\pi/6}^{7\pi/3} 2 \cot \frac{t}{7}\, dt$ 258) _____

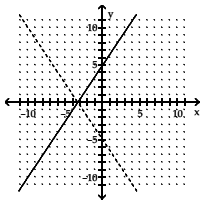
A) $-7 \ln 3$ B) $14 \ln 3$ C) $-14 \ln 3$ D) $7 \ln 3$

Graph the inverse of the function plotted, on the same set of axes. Use a dashed curve for the inverse.

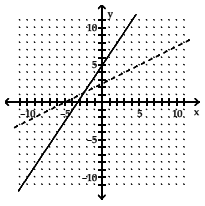
259) 259)



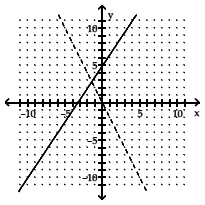
A)



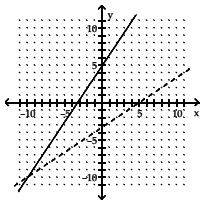
B)



C)

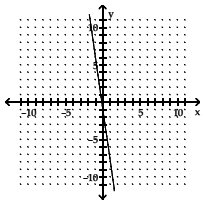


D)



Is the function graphed below one–to–one?

260) 260)



A) Yes B) No

Evaluate the integral.

261) $\int_{-6}^{-11/2} \frac{-\,dx}{\sqrt{-x^2 - 12x - 35}}$ 261) _____

A) $\frac{\pi}{6}$ B) $\frac{-\sqrt{3} + \pi}{6}$ C) $\frac{\pi}{3}$ D) $-\frac{\pi}{6}$

262) $\int 5x \operatorname{sech} x^2 \tanh x^2\, dx$ 262) _____

A) $\frac{5}{2} \operatorname{sech} x^2 + C$ B) $5 \operatorname{csch} x^2 + C$ C) $-\frac{5}{2} \operatorname{sech} x^2 + C$ D) $\frac{\operatorname{sech} x^2}{2x} + C$

Solve the problem.

263) Locate and identify the absolute extreme values of $\sin(\ln x)$ on $[4, 5]$ 263) _____

A) Absolute maximum at $(e^{\pi/2}, 1)$; absolute minimum at $(4, \sin(\ln 4))$

B) Absolute maximum at $(5, \sin(\ln 4))$; absolute minimum at $(4, \sin(\ln 4))$

C) Absolute maximum at$(5, \sin(\ln 4))$; absolute minimum at $(e^{\pi/2}, -1)$

D) Absolute maximum at $(e^{\pi/2}, 1)$; absolute minimum at $\left(5, \sin\left(\ln 5\right)\right)$

Find the angle.

264) $\cos^{-1} \frac{\sqrt{2}}{2}$ 264) _____

A) $\frac{11\pi}{6}$ B) $\frac{7\pi}{4}$ C) $\frac{\pi}{6}$ D) $\frac{\pi}{4}$

Find the derivative of y with respect to x, t, or θ, as appropriate.

265) $y = \ln(x - 2)$ 265) _____

A) $\frac{1}{2 - x}$ B) $\frac{1}{x - 2}$ C) $\frac{1}{x + 2}$ D) $-\frac{1}{x + 2}$

Find the inverse of the function.

266) $f(x) = \frac{5}{x + 6}$ 266) _____

A) Not a one–to–one function B) $f^{-1}(x) = \frac{6 + 5x}{x}$

C) $f^{-1}(x) = \frac{-6x + 5}{x}$ D) $f^{-1}(x) = \frac{x}{6 + 5x}$

Find $\frac{dy}{dx}$.

267) $e^{xy} = \sin x$ 267) _____

A) $\frac{\cos x - ye^{xy}}{xe^{xy}}$ B) $\frac{\sin x - ye^{xy}}{xe^{xy}}$ C) $\frac{\cos x}{e^{xy}}$ D) $\frac{\cos x - ye^{xy}}{e^{xy}}$

Solve the problem.

268) Find the length of the curve $y = \sqrt{4 - x^2}$ between $x = 0$ and $x = 1$. 268) _____

A) $\frac{1}{2}\pi$ B) $\frac{1}{3}\pi$ C) $\frac{2}{3}\pi$ D) $\frac{1}{6}\pi$

Evaluate the integral.

269) $\int \frac{5 - 4x}{\sqrt{4 - 25x^2}}\, dx$ 269) _____

A) $\sin^{-1}\left(\frac{5}{2}x\right) + \frac{4}{25}\sqrt{4 - 25x^2} + C$ B) $\frac{1}{2}\tan^{-1}\left(\frac{5}{2}x\right) + \frac{4}{25}\sqrt{4 - 25x^2} + C$

C) $\frac{4}{25}\sqrt{4 - 25x^2} + C$ D) $\sin^{-1}\left(\frac{5}{2}x\right) + \frac{4}{25}\ln\left(\sqrt{4 - 25x^2}\right) + C$

Evaluate the integral in terms of natural logarithms.

270) $\int_3^{18} \frac{dx}{x\sqrt{x^2 + 9}}$ 270) _____

A) $-\frac{1}{3}\ln\left(\frac{1 + \sqrt{2}}{1 + \sqrt{37}}\right)$ B) $-\ln\frac{1 + \sqrt{37}}{6}$

C) $\frac{1}{3}\ln\left(\frac{1 + \sqrt{2}}{1 + \sqrt{35}}\right)$ D) $\frac{1}{3}\ln\left(\frac{6(1 + \sqrt{2})}{1 + \sqrt{37}}\right)$

Evaluate the integral.

271) $\int_{-\pi/4}^{\pi/4} 10 \sinh(\tan\theta) \sec^2\theta\, d\theta$ 271) _____

A) $10(e^{\pi/4} - e^{-\pi/4})$ B) 0

C) 10 D) $10\left(e - \frac{1}{e}\right)$

Solve the problem.

272) Consider the graph of $f(x) = \sqrt{25 - x^2}$, $0 \le x \le 1$. What symmetry does the graph have? Is f its own inverse? 272) _____

A) The graph of f is symmetric with respect to the line y = x. The function f is its own inverse because $(f \circ f)(x) = x$.

B) The graph of f has no symmetry. The function f is not its own inverse because there is no symmetry.

C) The graph of f is symmetric with respect to the y–axis. The function f is not its own inverse because $(f \circ f)(x) = |x|$.

D) The graph of f is symmetric with respect to the y–axis. The function f is its own inverse because $(f \circ f)(x) = x$.

273) Find the half–life of the radioactive element radium, assuming that its decay constant is $k = 4.332 \times 10^{-4}$, with time measured in years. 273) _____

A) 2308 years B) 800 years C) 1600 years D) 1400 years

Find the derivative of y with respect to the appropriate variable.

274) $y = \cosh^{-1} 2\sqrt{x + 9}$ 274) _____

A) $\frac{1}{\sqrt{(2x + 17)}}$ B) $\frac{1}{\sqrt{(4x + 37)(x + 9)}}$

C) $\frac{1}{\sqrt{(2x + 17)(x + 9)}}$ D) $\frac{1}{\sqrt{(4x + 35)(x + 9)}}$

Find the derivative of y with respect to the independent variable.

275) $y = t^2 - e$ 275) _____

A) $(1 - e)t^2 - e$ B) $\frac{t^3 - e}{3 - e}$ C) $t^2 - e$ D) $(2 - e)t^1 - e$

Find the domain and range of the inverse of the given function.

276) $f(x) = 3.9 - 1.92x$ 276) _____

A) Domain: [3.9, ∞); range: all real numbers B) Domain: all real numbers; range: (∞, 3.9]

C) Domain: all real numbers; range: [3.9, ∞) D) Domain and range: all real numbers

Evaluate the integral.

277) $\int_0^{\pi/8} 8 \tan 2x \, dx$ 277) _____

A) −2 ln 2 B) 4 ln 2 C) 2 ln 3 D) 2 ln 2

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

278) $y = x^{\ln x}$ 278) _____

A) $(\ln x)^2$ B) $x^{\ln x - 1} \ln x$ C) $2x^{\ln x - 1} \ln x$ D) $\frac{2 \ln x}{x}$

Evaluate the integral.

279) $\int_{-1}^{0} \frac{3 \, dt}{\sqrt{3 - 2t - t^2}}$ 279) _____

A) $\frac{\sqrt{2}}{2} - \pi$ B) $\frac{1}{2}\pi$ C) 1π D) $\frac{\pi}{6}$

Solve the problem.

280) 280) _____

If f(x) is one–to–one, is g(x) = f(−x) also one–to–one? Explain.

A) g(x) is a reflection of f(x) across the x–axis. It will be one–to–one.

B) g(x) is a reflection of f(x) across the line y = x. It will not be one–to–one.

C) There is not enough information to determine whether g(x) is one–to–one.

D) g(x) is a reflection of f(x) across the y–axis. It will be one–to–one.

Find the derivative of y with respect to x, t, or θ, as appropriate.

281) $y = \ln(\cos(\ln \theta))$ 281) _____

A) $\tan(\ln \theta)$ B) $-\frac{\tan(\ln \theta)}{\theta}$ C) $\frac{\tan(\ln \theta)}{\theta}$ D) $-\tan(\ln \theta)$

Evaluate the integral.

282) $\int_1^{\sqrt{2}} x 8^{x^2} \, dx$ 282) _____

A) $\frac{8\sqrt{2} - 8}{2 \ln 8}$ B) $\frac{8}{\ln 8}$ C) 28 D) $\frac{28}{\ln 8}$

Solve the problem.

283) Find the linearization of $f(x) = 4^x$ at x = 0. Round coefficients to 2 decimal places. 283) _____

A) y = 1.39x + 1 B) y = 0.60x + 1 C) y = 4x + 1 D) y = 1.39x

Evaluate the integral.

284) $\int_0^{\pi/12} \frac{\sec^2 3x}{3 + \tan 3x} \, dx$ 284) _____

A) $\frac{1}{3} \ln \left| \frac{1}{3} \right|$ B) $\frac{1}{3} \ln \left| \frac{4}{3} \right|$ C) $e^{\frac{4}{3}}$ D) $\ln \left| \frac{4}{3} \right|$

Evaluate exactly.

285) $\sec\left(\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)\right)$ 285) _____

A) −1 B) $\frac{-\sqrt{3}}{2}$ C) $\frac{2\sqrt{3}}{3}$ D) $-\frac{2\sqrt{3}}{3}$

Find $\frac{dy}{dx}$.

286) $\ln y = e^y \cos 8x$ 286) _____

A) $\frac{-8ye^y \sin 8x}{1 - ye^y \cos 8x}$ B) $e^y \cos 8x - 8e^y \sin 8x$

C) $-8ye^y \sin 8x$ D) $\frac{ye^y \sin 8x}{1 - e^y \cos 8x}$

Evaluate the integral.

287) $\int \frac{\log_9 x}{x} \, dx$ 287) _____

A) $9^x \ln 9 + C$ B) $\frac{\ln x}{\ln 9} + C$ C) $\frac{(\ln x)^2}{2 \ln 9} + C$ D) $\frac{\ln 9 (\ln x)^2}{2} + C$

Find the value of df^{-1}/dx at x = f(a).

288) $f(x) = 3x + 9$, $a = 2$ 288) _____

A) 9 B) $\frac{1}{3}$ C) $\frac{1}{9}$ D) 3

A value of sinh x or cosh x is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

289) $\sinh x = -\frac{5}{12}$, $\cosh x =$ 289) _____

A) $-\frac{13}{12}$ B) $\frac{13}{12}$ C) $\frac{169}{144}$ D) $\frac{12}{13}$

Evaluate the integral.

290) $\int \frac{-(\cot^{-1} t)^4}{1 + t^2} \, dt$ 290) _____

A) $\sqrt{\cot^{-1} t} + C$ B) $4(\cot^{-1} t)^3 + C$ C) $-4(\cot^{-1} t)^5 + C$ D) $\frac{(\cot^{-1} t)^5}{5} + C$

Find the limit.

291) $\lim_{x \to 1^+} \frac{2\sqrt{x^2 - 1}}{\sec^{-1} x}$ 291) _____

A) 2 B) −2 C) $\frac{1}{2}$ D) 1

Rewrite the expression in terms of exponentials and simplify the results.

292) $\sinh(7 \ln x)$ 292) _____

A) $\frac{1}{2}\left(x^7 + \frac{1}{x^7}\right)$ B) $\frac{7}{2}\left(x - \frac{1}{x}\right)$ C) $2x$ D) $\frac{1}{2}\left(x^7 - \frac{1}{x^7}\right)$

Solve the problem.

293) Find the area of the region between the curve $y = 6x/(1 + x^2)$ and the interval $-2 \le x \le 2$ of the x–axis. 293) _____

A) 6 ln 5 B) 0 C) $6 e^5$ D) ln 5

Determine whether the integration formula is correct.

294) $\int x^5 \sin^{-1} 8x \, dx = \frac{x^4}{4} \sin^{-1} 8x + \frac{8}{6} \int \frac{x^6 \, dx}{\sqrt{1 - 64x^2}} + C$ 294) _____

A) Yes B) No

Solve the problem.

295) Find the volume of the solid that is generated by revolving the area bounded by $y = \frac{5}{\sqrt{2x + 1}}$, $x = 0$, $x = 2$, and $y = 0$ about the x–axis. 295) _____

A) $\frac{25}{2}\pi \ln(2)$ B) $\frac{25}{2}\pi \ln(5)$ C) $\frac{5\sqrt{2}}{2}\pi \ln(5)$ D) $\frac{5}{2}\pi \ln(2)$

Find the derivative of y with respect to the appropriate variable.

296) $y = \sinh^{-1}(\cos x)$ 296) _____

A) $\frac{-\sin x}{\sqrt{1 + \cos^2 x}}$ B) $\frac{1}{\sqrt{1 + \cos^2 x}}$ C) $\frac{-\sin x}{\sqrt{1 + x^2}}$ D) $-\sin x$

Solve the problem.

297) Find the length of the curve $y = \frac{x^2}{4} - \frac{1}{2} \ln x$, $2 \le x \le 4$. 297) _____

A) $3 + \ln 2$ B) $2 + \ln 3$ C) $3 + \frac{\ln 2}{2}$ D) $\frac{\ln 2}{2}$

Simplify the expression.

298) $e^{\ln 1.6}$ 298) _____

A) 4.95 B) 0.47 C) 1.6 D) 4.35

Rewrite the expression in terms of exponentials and simplify the results.

299) $(\sinh x + \cosh x)^3$ 299) _____

A) $\frac{e^{3x}}{4}$ B) e^{3x} C) $e^{3x} - e^{-3x}$ D) e^{x^3}

Solve the problem.

300) A loaf of bread is removed from an oven at 350° F and cooled in a room whose temperature is 70° F. If the bread cools to 210° F in 20 minutes, how much longer will it take the bread to cool to 170° F. 300) _____

A) 30 min B) 10 min C) 21 min D) 11 min

301) A region in the first quadrant is bounded above by the curve $y = \tanh x$, below by the x–axis, on the left by the y–axis, and on the right by the line $x = \ln 6$. Find the volume of the solid generated by revolving the region about the x–axis. 301) _____

A) $\pi\left(\ln 6 - \frac{35}{37}\right)$ B) 0 C) $-\frac{35}{37}$ D) 2π

Rewrite the expression in terms of exponentials and simplify the results.

302) $\ln(\cosh 7x - \sinh 7x) + \ln(\cosh 6x + \sinh 6x)$ 302) _____

A) -1 B) $\ln(e^{6x} - e^{-7x})$ C) $-1x$ D) $13x$

Find the formula for df^{-1}/dx.

303) $f(x) = 243x^3$ 303) _____

A) $\frac{1}{15x^{4/5}}$ B) $1215x^4$ C) $15x^4$ D) $\frac{x^{1/5}}{3}$

Evaluate the integral.

304) $\int x^6 e^{-x^7}\,dx$ 304) _____

A) $-\frac{1}{7}e^{-x^7} + C$ B) $-7e^{-x^8} + C$ C) $e^{-x^7} + C$ D) $-\frac{1}{7}e^{-x^8} + C$

Rewrite the following without using trigonometric or inverse trigonometric functions.

305) $\tan\left(\cos^{-1}\frac{u}{5}\right)$ 305) _____

A) $\frac{\sqrt{u^2 - 25}}{u}$ B) $u^2\sqrt{25}$ C) $\frac{u\sqrt{25 - u^2}}{25 - u^2}$ D) $\frac{\sqrt{25 - u^2}}{u}$

Find the derivative of y with respect to the independent variable.

306) $y = (\cos\theta)^{\sqrt{11}}$ 306) _____

A) $-\sqrt{11}(\cos\theta)^{\sqrt{11}-1}\sin\theta$ B) $-\sqrt{11}\cos\theta\sin\theta$

C) $\sqrt{11}(\cos\theta)^{\sqrt{11}-1}$ D) $-(\cos\theta)^{\sqrt{11}-1}\sin\theta$

Evaluate the integral.

307) $\int \frac{\sec x \tan x}{4 + \sec x}\,dx$ 307) _____

A) $4\ln(4 + \sec x) + C$ B) $-4 - \sec x + C$

C) $-\ln(4 + \sec x) + C$ D) $4\ln\sec x + C$

Evaluate exactly.

308) $\csc(\tan^{-1}1 + \csc^{-1}1)$ 308) _____

A) $\frac{\sqrt{2}}{2}$ B) 0 C) $\sqrt{2}$ D) $-\sqrt{2}$

Find the inverse of the function.

309) $f(x) = 2x - 5$ 309) _____

A) $f^{-1}(x) = \frac{x}{2} + 5$ B) Not a one–to–one function

C) $f^{-1}(x) = \frac{x - 5}{2}$ D) $f^{-1}(x) = \frac{x + 5}{2}$

Rewrite the expression in terms of exponentials and simplify the results.

310) $\cosh 3x - \sinh 3x$ 310) _____

A) $2e^{-3x}$ B) $-3x$ C) e^{-3x} D) $e^{3x} - e^{-3x}$

Find the inverse of the function.

311) $f(x) = \sqrt{x} - 7,\ x \ge 0$ 311) _____

A) $f^{-1}(x) = x + 7,\ x \ge 7$ B) $f^{-1}(x) = (x + 7)^2,\ x \ge 7$

C) $f^{-1}(x) = -(x + 7)^2,\ x \ge 7$ D) $f^{-1}(x) = (x - 7)^2$

Express as a single logarithm and, if possible, simplify.

312) $\frac{1}{2}\ln(4t^6) - \ln 2$ 312) _____

A) $\ln(2t^3)$ B) $\ln(t^3)$ C) $\ln 2(t^3 - 1)$ D) $\ln(1t^3)$

Find the derivative of y with respect to x, t, or θ, as appropriate.

313) $y = 3e^\theta(\sin\theta - \cos\theta)$ 313) _____

A) $6e^\theta(\sin\theta - \cos\theta)$ B) $6e^\theta\sin\theta$

C) $3e^\theta(\sin\theta - \cos\theta) + 3e^\theta$ D) 0

Evaluate the integral.

314) $\int 7\cosh\left(\frac{x}{2} - \ln 5\right)dx$ 314) _____

A) $14\sinh\left(\frac{x}{2} - \ln 5\right) + C$ B) $7\sinh\left(\frac{x}{2} - \ln 5\right) + C$

C) $\frac{14}{5}\sinh\left(\frac{x}{2} - \ln 5\right) + C$ D) $\frac{7}{2}\sinh\left(\frac{x}{2}\right) + C$

Solve the problem.

315) Locate and identify the absolute extreme values of $\ln(\sin x)$ on $[\pi/6,\ 3\pi/4]$ 315) _____

A) Absolute maximum at $(\pi/2, 0)$; absolute minimum at $(\pi/6, -\ln 2)$

B) Absolute maximum at $\left(3\pi/4, \frac{\ln 2}{2}\right)$; absolute minimum at $(\pi/2, 0)$

C) Absolute maximum at $(\pi/6, \ln 2)$; absolute minimum at $(\pi/2, 0)$

D) Absolute maximum at $(\pi/2, 0)$; absolute minimum at $\left(3\pi/4, -\frac{\ln 2}{2}\right)$

Find the slowest growing and the fastest growing functions as $x \to \infty$.

316) $y = 2x^2 + 9x$ 316) _____

$y = e^x$

$y = e^{x/6}$

$y = \log_7 x$

A) Slowest: $y = e^{x/6}$

Fastest: $2x^2 + 9x$

B) Slowest: $2x^2 + 9x$

Fastest: $y = e^x$

C) Slowest: $y = \log_7 x$

Fastest: $y = e^x$ and $y = e^{x/6}$ grow at the same rate

D) Slowest: $y = \log_7 x$

Fastest: $y = e^x$

Evaluate the integral.

317) $\int_{-\ln 3}^{0} 9\sinh^2\left(\frac{x}{2}\right)dx$ 317) _____

A) $-\frac{64}{9}$ B) $\frac{9}{2}\left(\frac{4}{3} + \ln 3\right)$ C) $\frac{9}{2}\left(\frac{4}{3} - \ln 3\right)$ D) $3(e^6 - e^{-6})$

Rewrite the ratio as a ratio of natural logarithms and simplify.

318) $\frac{\log_2 x}{\log_8 x}$ 318) _____

A) $\ln 3$ B) 3 C) $\frac{1}{2^2}$ D) 2^2

Find the derivative of y.

319) $y = \operatorname{sech}(2\theta)\,(1 - \ln\operatorname{sech}(2\theta))$ 319) _____

A) $2\operatorname{sech}(2\theta)\tanh(2\theta)\ln(2\theta)$ B) $2\operatorname{sech}(2\theta)\tanh(2\theta)\ln\operatorname{sech}(2\theta)$

C) $1 - 2\operatorname{sech}(2\theta)\tanh(2\theta)\ln\operatorname{sech}(2\theta)$ D) $\operatorname{sech}(2\theta)\tanh(2\theta)\ln\operatorname{sech}(2\theta)$

Rewrite the following without using trigonometric or inverse trigonometric functions.

320) $\sin\left(\tan^{-1}\frac{u}{\sqrt{3}}\right)$ 320) _____

A) $\frac{\sqrt{u^2 + 3}}{u^2 + 3}$ B) $\frac{u\sqrt{u^2 + 3}}{u^2 + 3}$ C) $u\sqrt{u^2 + 3}$ D) $\frac{u\sqrt{u^2 - 3}}{u^2 - 3}$

Solve the problem.

321) Find the length of the curve $x = \frac{y^2}{32} - 4\ln\left(\frac{y}{3}\right),\ 8 \le y \le 16$. 321) _____

A) $8 + 4\ln 2$ B) $8 + 4\ln\frac{2}{3}$ C) $6 + 4\ln 2$ D) $6 + 4\ln\frac{2}{3}$

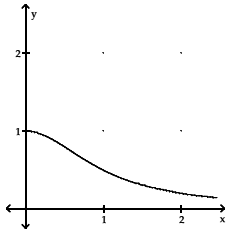
Evaluate the integral.

322) $\int_{\pi/8}^{\pi/4} 2\cot(2\theta)\,d\theta$ 322) _____

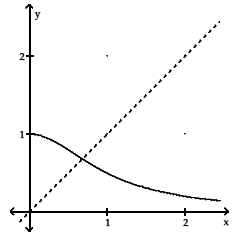
A) $-\frac{\ln 2}{2}$ B) $\frac{\ln 4}{2}$ C) $\frac{\ln 2}{2}$ D) $\ln 2$

Graph the inverse of the function plotted, on the same set of axes. Use a dashed curve for the inverse.

323) 323)



A)



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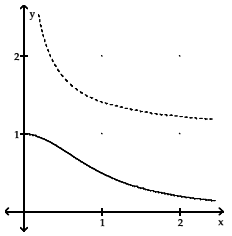
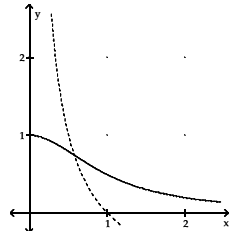
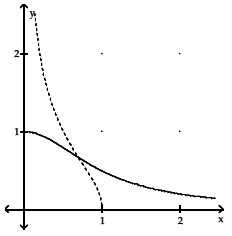


C)



D)



Find the limit.

324) $\lim_{x \to 0} \frac{\sin^{-1} 4x}{x}$ 324) _____

A) 4 B) 1 C) $\frac{1}{4}$ D) ∞

Express the value of the inverse hyperbolic function in terms of natural logarithms.

325) $\operatorname{csch}^{-1}\left(\frac{9}{4}\right)$ 325) _____

A) $\ln \sqrt{97}$ B) $\ln\left(\frac{4+\sqrt{97}}{9}\right)$ C) $\ln \frac{3}{2}$ D) $\ln\left(\frac{4-\sqrt{97}}{9}\right)$

Evaluate the integral.

326) $\int_{\ln 2}^{\ln 9} \tanh x \, dx$ 326) _____

A) $\ln 2$ B) $\frac{119}{18}$ C) $\ln \frac{164}{45}$ D) $\ln \frac{119}{18}$

Find the derivative of y with respect to the independent variable.

327) $y = 7^{\cos \pi\theta}$ 327) _____

A) $-7^{\cos \pi\theta} \ln 7 \sin \pi\theta$ B) $7^{\cos \pi\theta}$

C) $-\pi 7^{\cos \pi\theta} \ln 7 \sin \pi\theta$ D) $\pi 7^{\cos \pi\theta} \ln 7$

Find the inverse of the function.

328) $f(x) = x^3 + 7$ 328) _____

A) $f^{-1}(x) = \sqrt[3]{x} - 7$ B) Not a one–to–one function

C) $f^{-1}(x) = \sqrt[3]{x + 7}$ D) $f^{-1}(x) = \sqrt[3]{x - 7}$

Evaluate the integral in terms of natural logarithms.

329) $\int_4^8 \frac{dx}{\sqrt{x^2 - 9}}$ 329) _____

A) $\ln\left(\frac{8+\sqrt{55}}{16}\right) - 1$ B) $\ln\left(\frac{8+\sqrt{55}}{4}\right)$ C) $\ln 5$ D) $\frac{1}{2} \ln\left(\frac{\sqrt{55}}{4}\right)$

Find the domain and range of the inverse of the given function.

330) $f(x) = \frac{8}{x^2 + 1}, x \geq 0$ 330) _____

A) Domain: (0, 8]; range: [0, ∞) B) Domain and range: [0, ∞)

C) Domain: [0, ∞); range: (0, 8] D) Domain: ($-\infty$, 0]; range: [−8, 0)

Find the angle.

331) $\sin^{-1} 0$ 331) _____

A) 0 B) $-\frac{\pi}{2}$ C) $\frac{\pi}{2}$ D) π

Evaluate exactly.

332) $\cos^{-1}\left(\cos\left(-\frac{\pi}{3}\right)\right)$ 332) _____

A) $\frac{4\pi}{3}$ B) $-\frac{3}{\pi}$ C) $\frac{\pi}{3}$ D) $-\frac{\pi}{3}$

Determine whether the integration formula is correct.

333) $\int \frac{1}{x} + \frac{6}{5} \cot^{-1}\frac{3}{5}x \, dx = \ln x + \ln (25 + 9x^2) - \frac{6}{5}x \cot^{-1}\frac{3}{5}x + C$ 333) _____

A) No B) Yes

Evaluate the integral.

334) $\int_1^7 \frac{4 \ln x}{x} \, dx$ 334) _____

A) $\frac{4 \ln 7 - 1}{\ln 4}$ B) $\frac{27}{\ln 4}$ C) $\frac{4 \ln 7}{\ln 4}$ D) $\frac{16{,}380}{\ln 4}$

Solve for y or k, as appropriate.

335) $\ln (1 - 10y) = x$ 335) _____

A) $\frac{1 - e^x}{10}$ B) $\frac{e^x - 1}{10}$ C) $\frac{1 - \ln x}{10}$ D) $e^x + 9$

Answer the question appropriately.

336) Find the linearization of $f(x) = \log_5 x$ at $x = 5$. Round the coefficients to 2 decimal places. 336) _____

A) $L(x) = 0.32x - 0.61$ B) $L(x) = 0.12x + 0.38$

C) $L(x) = 0.12x + 1$ D) $L(x) = x - 5$

Find the inverse of the function.

337) $f(x) = \sqrt{x - 9}, x \geq 9$ 337) _____

A) $f^{-1}(x) = x^2 - 9, x \geq 0$ B) $f^{-1}(x) = x^2 + 9, x \geq 0$

C) Not a one–to–one function D) $f^{-1}(x) = x + 9, x \geq 0$

Solve for y or k, as appropriate.

338) $\ln y = 4x + 3$ 338) _____

A) $e^{4x + 3}$ B) $4x$ C) 7 D) $\ln (4x + 3)$

Determine whether the integration formula is correct.

339) $\int 36x \cos^{-1} 6x \, dx = \frac{72x^2 - 1}{4} \cos^{-1} 6x - \frac{6x\sqrt{1 - 36x^2}}{4} + C$ 339) _____

A) Yes B) No

Find the limit.

340) $\lim_{x \to -\infty} \csc^{-1} x$ 340) _____

A) 0 B) $-\infty$ C) $-\frac{\pi}{2}$ D) $\frac{\pi}{2}$

Rewrite the expression in terms of exponentials and simplify the results.

341) $\cosh 5x + \sinh 5x$ 341) _____

A) e^{5x} B) $5x$ C) $2e^{5x}$ D) $e^{5x} - e^{-5x}$

Answer the question appropriately.

342) Where does the periodic function $f(x) = 4e^{\sin(x/2)}$ take on its extreme values? 342) _____

A) x is an odd integer B) $x = \pm k\pi$ where k is an odd integer

C) $x = \pm k\pi$ where k is an even integer D) $x = \pm k\pi/4$ where k is an even integer

Evaluate the integral.

343) $\int \frac{12e^{\sqrt{3x}}}{2\sqrt{x}} dx$ 343) _____

A) $6 e^{\sqrt{3x}} + C$ B) $12 e^{\sqrt{3x}} + C$ C) $\sqrt{3} e^{\sqrt{3x}} + C$ D) $4\sqrt{3} e^{\sqrt{3x}} + C$

Solve the problem.

344) By what factor k do you have to multiply the intensity of I of the sound from your audio amplifier to add 8 db to the sound level? 344) _____

A) k = 6.3 B) k = 9 C) k = 2.2 D) k = 0.9

Evaluate the integral.

345) $\int \sinh 10x \, dx$ 345) _____

A) $\cosh^{-1} 10x + C$ B) $\cosh 10x + C$

C) $-\frac{1}{10} \cosh 10x + C$ D) $\frac{1}{10} \cosh 10x + C$

Find the derivative of y with respect to x, t, or θ, as appropriate.

346) $y = \sin e^{-\theta^7}$ 346) _____

A) $\cos e^{-\theta^7}$ B) $(-7\theta^6 \ e^{-\theta^7}) \cos \ e^{-\theta^7}$

C) $\cos (-7\theta^6 \ e^{-\theta^7})$ D) $7\theta^6 \cos \ e^{-\theta^7}$

Find the slowest growing and the fastest growing functions as $x \to \infty$.

347) $y = \ln 2x$ 347) _____
$y = 8 \ln x$
$y = \frac{1}{x}$
$y = \sqrt{x}$

A) Slowest: $y = \sqrt{x}$
Fastest: $y = \ln 2x$ and $y = 8 \ln x$ grow at the same rate.

B) Slowest: $y = \ln 2x$ and $y = 8 \ln x$ grow at the same rate.
Fastest: $y = \sqrt{x}$

C) Slowest: $y = \frac{1}{x}$
Fastest: $y = 8 \ln x$

D) Slowest: $y = \frac{1}{x}$
Fastest: $y = \sqrt{x}$

Evaluate the integral.

348) $\int \frac{dx}{2\sqrt{x}(1 + x)}$ 348) _____

A) $\frac{1}{2} \sin^{-1} \sqrt{x} + C$ B) $\frac{1}{2} \ln |x| + C$ C) $\tan^{-1} \sqrt{x} + C$ D) $\frac{1}{2} \tan^{-1} \sqrt{x} + C$

349) $\int_0^{7\pi/4} \tan \frac{x}{7} \, dx$ 349) _____

A) $\frac{-7 \ln 2}{2}$ B) $\frac{-7\sqrt{2}}{2}$ C) $\frac{7\sqrt{2}}{2}$ D) $\frac{7 \ln 2}{2}$

Express the value of the inverse hyperbolic function in terms of natural logarithms.

350) $\cosh^{-1}\left(\frac{13}{5}\right)$ 350) _____

A) $\ln\left(\frac{13}{5} + \sqrt{170}\right)$ B) $\ln 4$ C) $\ln 5$ D) $\ln \frac{1}{5}$

Simplify the expression.

351) $4^{\log_4 8}$ 351) _____

A) 32 B) $\log_4 8$ C) 8 D) 4

Find the derivative of y with respect to x, t, or θ, as appropriate.

352) $y = e^{\sin t} (\ln t^3 + 10)$ 352) _____

A) $e^{\sin t}\left((\cos t)(\ln t^3 + 10) + \frac{3}{t}\right)$ B) $e^{\cos t} (\cos t)(\ln t^3 + 10) + \frac{3e^{\sin t}}{t}$

C) $e^{\sin t}\left(\ln t^3 + 10 + \frac{3}{t}\right)$ D) $\frac{3e^{\sin t} \cos t}{t}$

Solve for y or k, as appropriate.

353) $100e^{5k} = 700$ 353) _____

A) $\ln\left(\frac{7}{5}\right)$ B) $\frac{e^7}{5}$ C) $\frac{\ln 600}{5}$ D) $\frac{\ln 7}{5}$

Express the value of the inverse hyperbolic function in terms of natural logarithms.

354) $\text{sech}^{-1}\left(\frac{12}{13}\right)$ 354) _____

A) $\ln \frac{2}{3}$ B) Undefined C) $\ln \frac{18}{13}$ D) $\ln \frac{3}{2}$

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

355) $y = 5t^{\sqrt{t}}$ 355) _____

A) $\frac{5t^{\sqrt{t}-1}(\ln 5t)}{\sqrt{t}-1}$ B) $\frac{5t^{\sqrt{t}}}{\sqrt{t}}\left(\frac{1}{2}\ln 5t - 1\right)$ C) $5t\left(\frac{1}{2}\ln 5t - 1\right)$ D) $\frac{1}{\sqrt{t}}\left(\frac{1}{2}\ln 5t - 1\right)$

Solve for y or k, as appropriate.

356) $\ln(y - 39) = 4x$ 356) _____

A) $\ln(4x) + 39$ B) $\frac{4x + 39}{e}$ C) $4x + 39$ D) $e^{4x} + 39$

Express as a single logarithm and, if possible, simplify.

357) $\ln(72x + 36) - 2\ln 6$ 357) _____

A) $\ln(6x + 2)$ B) $\ln(1296(2x + 1))$ C) $\ln(72x)$ D) $\ln(2x + 1)$

Find the derivative of y with respect to the appropriate variable.

358) $y = (6 - 6\theta)\tan^{-1}\theta$ 358) _____

A) $\frac{6}{1-\theta} - 6\tan^{-1}\theta$ B) $\frac{-6}{1+\theta}$

C) $\frac{6 + 6\theta}{1 + \theta^2} - 6\tan^{-1}\theta$ D) $\frac{6}{1+\theta} - 6\tan^{-1}\theta$

Find the derivative of y with respect to x.

359) $y = \sin^{-1}(e^{5t})$ 359) _____

A) $\frac{5e^{5t}}{\sqrt{1 - e^{25t}}}$ B) $\frac{e^{5t}}{\sqrt{1 - e^{10t}}}$ C) $\frac{-5e^{5t}}{\sqrt{1 - e^{10t}}}$ D) $\frac{5e^{5t}}{\sqrt{1 - e^{10t}}}$

Express the value of the inverse hyperbolic function in terms of natural logarithms.

360) $\sinh^{-1}(8)$ 360) _____

A) $\ln(8 - \sqrt{65})$ B) $\ln(8 + \sqrt{65})$ C) $\ln 16$ D) $\ln(8 + \sqrt{63})$

Find the derivative of y with respect to x.

361) $y = 4x^4 \sin^{-1} x$ 361) _____

A) $\frac{4x^4}{\sqrt{1-x^2}} + 16x^3 \sin^{-1} x$ B) $\frac{4x^4}{1+x^2} + 16x^3 \sin^{-1} x$

C) $\frac{4x^4}{\sqrt{1-x^2}}$ D) $\frac{1}{\sqrt{1-x^2}} + 16x^3$

Evaluate the integral in terms of natural logarithms.

362) $\int_0^{5\sqrt{3}} \frac{dx}{\sqrt{25 + x^2}}$ 362) _____

A) $\ln(\sqrt{2} + \sqrt{3})$ B) $\ln(\sqrt{3} + 2)$ C) $\ln\left(\frac{\sqrt{3}+2}{5}\right)$ D) $\ln(\sqrt{2} + 3)$

A value of sinh x or cosh x is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

363) $\cosh x = \frac{5}{3}$, $x > 0$, $\sinh x =$ 363) _____

A) $-\frac{4}{3}$ B) $\frac{3}{5}$ C) $\frac{16}{9}$ D) $\frac{4}{3}$

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

364) $y = (\sin x)^{\cos x}$ 364) _____

A) $\cos x \ln(\sin x)$ B) $\cos x \cot x - \ln(\sin x)$

C) $(\sin x)^{\cos x}(\cos x \cot x - \sin x \ln(\sin x))$ D) $\cos x \cot x - \sin x \ln(\sin x)$

Find the derivative of y with respect to x, t, or θ, as appropriate.

365) $y = \ln\frac{1 + \sqrt{x}}{x^2}$ 365) _____

A) $\frac{-4 - 3\sqrt{x}}{2x}$ B) $\frac{4 - 3\sqrt{x}}{2x(1 + \sqrt{x})}$ C) $\frac{-4 - 3\sqrt{x}}{2(1 + \sqrt{x})}$ D) $\frac{-4 - 3\sqrt{x}}{2x(1 + \sqrt{x})}$

Evaluate the integral.

366) $\int_{\ln 4}^{\ln 3} e^x\,dx$ 366) _____

A) 7 B) –1 C) 1 D) 6

Solve the initial value problem.

367) $\frac{dy}{dx} = \frac{-4}{\sqrt{1-x^2}}$, $y(1) = -5$ 367) _____

A) $y = 4\sin^{-1} x + \frac{-10 - 4\pi}{2}$ B) $y = 4\sin^{-1} x - 9$

C) $y = 4\cos^{-1} x$ D) $y = -4\sin^{-1} x - 5$

Find the derivative of y with respect to x, t, or θ, as appropriate.

368) $y = \int_{e^{4\sqrt{x}}}^{e^{8x}} \ln t\ dt$ 368) _____

A) $64e^{8x} - 4\sqrt{x}e^{4\sqrt{x}}$ B) $64xe^{8x} - 8e^{4\sqrt{x}}$

C) $\ln t$ D) $e^{8x}(8x - 1) - e^{4\sqrt{x}}(4\sqrt{x} - 1)$

Rewrite the expression in terms of exponentials and simplify the results.

369) $16\cosh(\ln x) + 4\sinh(\ln x)$ 369) _____

A) 0 B) $10\left(x + \frac{1}{x}\right)$ C) $10x$ D) $10x + \frac{6}{x}$

Solve the problem.

370) The barometric pressure p at an altitude of h miles above sea level satisfies the differential equation $\frac{dp}{dh} = -0.2\,p$. If the pressure at sea level is 29.92 inches of mercury, find the barometric pressure at 17,000 ft. 370) _____

A) 56.97 in. B) 15.71 in. C) 1 in. D) 7.86 in.

371) Find the area bounded by the x-axis, the curve $y = \frac{1}{x+2}$, $x = 0$, $y = 0$, and $x = 4$. 371) _____

A) $2\ln(6)$ B) $\ln(6)$ C) $\ln(3)$ D) $\frac{1}{2}\ln(3)$

Find the angle.

372) $\tan^{-1} -1$ 372) _____

A) $\frac{3\pi}{4}$ B) $\frac{-\pi}{4}$ C) 0 D) 1

Express as a single logarithm and, if possible, simplify.

373) $\ln(5x^2 - 15x) + \ln\left(\frac{1}{5x}\right)$ 373) _____

A) $\ln\left(5x^2 - 15x + \frac{1}{5x}\right)$ B) $\ln(x - 15)$

C) $\ln(x - 3)$ D) $\ln(25x^2(x - 3))$

Evaluate the integral.

374) $\int \frac{\cos x\,dx}{1 + 2\sin x}$ 374) _____

A) $2\sin x + C$ B) $\frac{1}{2}\ln|1 + 2\sin x| + C$

C) $\ln|1 + 2\sin x| + C$ D) $2\ln|1 + 2\sin x| + C$

375) $\int_1^9 6\frac{\sinh\sqrt{x}}{\sqrt{x}}\,dx$ 375) _____

A) –6 B) $6(e^3 - e)$

C) $12\left(e^3 + e^{-3} - e - \frac{1}{e}\right)$ D) $6\left(e^3 + e^{-3} - e - \frac{1}{e}\right)$

Use logarithmic differentiation to find the derivative of y.

376) $y = \sqrt{\frac{x}{x+6}}$ 376) _____

A) $\left(\frac{1}{2}\right)\sqrt{\frac{x}{x+6}}\left(\frac{1}{x} - \frac{1}{x+6}\right)$ B) $3\sqrt{\frac{x}{x+6}}$

C) $\left(\frac{1}{2}\right)\left(\frac{1}{x} - \frac{1}{x+6}\right)$ D) $\left(\frac{1}{2}\right)(\ln x - \ln(x+6))$

A value of sinh x or cosh x is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

377) $\sinh x = -\frac{3}{4}$, $\coth x =$ 377) _____

A) $-\frac{3}{5}$ B) $\frac{5}{4}$ C) $\frac{5}{16}$ D) $-\frac{5}{3}$

Solve the problem.

378) The solid lies between planes perpendicular to the x-axis at $x = -2$ and $x = 2$. The cross sections perpendicular to the x-axis are circles whose diameters stretch from the curve $y = -9/\sqrt{4 + x^2}$ to the curve $y = 9/\sqrt{4 + x^2}$. 378) _____

A) $81\pi^2$ B) $\frac{9}{4}\pi^2$ C) $\frac{81}{4}\pi^2$ D) 81π

Find the derivative of y with respect to x, t, or θ, as appropriate.

379) $y = (x^2 - 2x + 5)e^x$ 379) _____

A) $(x^2 + 4x + 3)e^x$ B) $(x^2 + 3)e^x$ C) $(2x - 2)e^x$ D) $\left(\frac{x^3}{3} + 3x + 5\right)e^x$

Evaluate exactly.

380) $\tan(\sec^{-1} 1) + \cos(\tan^{-1}(-\sqrt{3}))$ 380) _____

A) $\frac{-1}{2}$ B) $\frac{-\sqrt{3}}{2}$ C) $\frac{1}{2}$ D) Undefined

381) $\sec\left(\tan^{-1}\left(\frac{4}{3}\right)\right)$ 381) _____

A) $\frac{5}{3}$ B) $-\frac{5}{3}$ C) $\frac{1}{3}$ D) $\frac{5}{4}$

Find the derivative of y with respect to x, t, or θ, as appropriate.

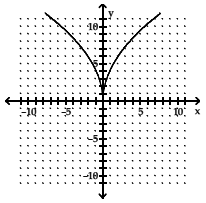
382) $y = \int_{\sqrt{x}}^{\sqrt{2x}} \ln t^2 \, dt$ 382) _____

A) $\ln 2x^2$ B) $\ln x$

C) $\frac{\sqrt{2x}\ln|2x|}{2x} - \frac{\ln|x|}{2\sqrt{x}}$ D) $-\ln 2$

Is the function graphed below one–to–one?

383) 383)



A) No B) Yes

Answer the question appropriately.

384) Find the linearization of f(x) = sin x at x = 2. Round the coefficients to 2 decimal places. 384) _____

A) L(x) = cos x B) L(x) = 0.42x + 0.49

C) L(x) = –0.42x + 0.07 D) L(x) = –0.42x +1.74

Solve the initial value problem.

385) $\frac{dy}{dx} = \frac{5}{x\sqrt{x^2 - 1}}$, $x > 1$, $y(2) = 5\pi$ 385) _____

A) $y = 5\sin^{-1} x + 5\pi$ B) $y = 5\csc^{-1} x + \frac{2}{3}\pi$

C) $y = 5\sec^{-1} x + \frac{10}{3}\pi$ D) $y = 5\sec^{-1} x$

Find the angle.

386) $\sin^{-1}\frac{\sqrt{3}}{2}$ 386) _____

A) $\frac{\pi}{3}$ B) $\frac{3\pi}{4}$ C) $\frac{\pi}{4}$ D) $\frac{2\pi}{3}$

Find the slowest growing and the fastest growing functions as $x \to \infty$.

387) $y = e^x$ 387) _____
$y = e^{x/6}$
$y = x^x$
$y = 7^x$

A) Slowest: $y = x^x$
Fastest: $y = 7^x$

B) Slowest: $y = e^{x/6}$
Fastest: $y = x^x$

C) Slowest: $y = e^{x/6}$ and $y = e^x$ grow at the same rate.
Fastest: $y = x^x$

D) Slowest: $y = e^{x/6}$ and $y = e^x$ grow at the same rate.
Fastest: $y = 7^x$

Evaluate exactly.

388) $\cos\left(\sin^{-1}\left(\frac{12}{13}\right)\right)$ 388) _____

A) $\frac{-5}{13}$ B) $\frac{-12}{13}$ C) $\frac{12}{5}$ D) $\frac{5}{13}$

Find the inverse of the function.

389) $f(x) = 7x^3 + 6$ 389) _____

A) Not a one–to–one function B) $f^{-1}(x) = \sqrt[3]{\frac{x}{7}} - 6$

C) $f^{-1}(x) = \sqrt[3]{\frac{x+6}{7}}$ D) $f^{-1}(x) = \sqrt[3]{\frac{x-6}{7}}$

Find $\frac{dy}{dx}$.

390) $\ln 6xy = e^{x+y}$ 390) _____

A) $\frac{y}{x}$ B) $\frac{2xye^{x+y}}{x+y}$ C) $\frac{e^{x+y}}{e6x}$ D) $\frac{xye^{x+y} - y}{x - xye^{x+y}}$

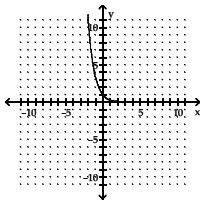
Evaluate the integral.

391) $\int \cosh\frac{x}{4}\,dx$ 391) _____

A) $-4\sinh\frac{x}{4} + C$ B) $\sinh\frac{x}{4} + C$ C) $\sin^{-1}\frac{x}{4} + C$ D) $4\sinh\frac{x}{4} + C$

Is the function graphed below one–to–one?

392) 392)



A) No B) Yes

Rewrite the expression in terms of exponentials and simplify the results.

393) $\ln(\cosh 10x - \sinh 10x)$ 393) _____

A) $\ln(e^{10x} - e^{-10x})$ B) –10 C) –10x D) –20x

Find the derivative of y with respect to the independent variable.

394) $y = 2^{\sqrt{t}}$ 394) _____

A) $\frac{1}{2\sqrt{t}}2^{\sqrt{t}}$ B) $\frac{\ln 2}{2\sqrt{t}}2^{\sqrt{t}}$ C) $2^{\sqrt{t}}\ln 2$ D) $\frac{\ln 2\sqrt{t}}{2\sqrt{t}}$

Determine whether the integration formula is correct.

395) $\int 6\,\text{csch}\,6x\,dx = \ln|\tanh 3x| + C$ 395) _____

A) No B) Yes

Simplify the expression.

396) $\ln\left(e^{9\ln x}\right)$ 396) _____

A) ln 9 B) $\ln x^9$ C) 9 D) x^9

Find the derivative of y with respect to the independent variable.

397) $y = \log_4\left(\frac{\sin\theta\cos\theta}{e^{\theta 5^\theta}}\right)$ 397) _____

A) $\frac{1}{\ln 4}(\sec\theta\csc\theta - \ln 5 - 1)$ B) $\frac{1}{\ln 4}(\cot\theta - \tan\theta - \ln 5 - 1)$

C) $e^4(\cos\theta - \sin\theta - e^{\theta 5^\theta})$ D) $\frac{1}{\ln 4}\left(\frac{e^{\theta 5^\theta}}{\sin\theta\cos\theta}\right)$

Find the inverse of the function.

398) $f(x) = \sqrt{x+9}$, $x \geq -9$ 398) _____

A) $f^{-1}(x) = x^2 - 81$, $x \geq 0$ B) $f^{-1}(x) = x^2 - 9$, $x \geq 0$

C) Not a one–to–one function D) $f^{-1}(x) = -x^2 + 9$, $x \geq 0$

Evaluate the integral.

399) $\int \frac{dt}{5(\tan^{-1} t)(1+t^2)}$ 399) _____

A) $5\cot^{-1} t + C$ B) $\frac{1}{5(\tan^{-1} t)^2} + C$ C) $\ln|5\tan^{-1} t| + C$ D) $\frac{1}{5}\ln|\tan^{-1} t| + C$

Simplify the expression.

400) $e^{-\ln x^6}$ 400) _____

A) $\frac{1}{x^6}$ B) 6 C) $\frac{1}{e^{x^6}}$ D) x^6

Evaluate the integral.

401) $\int \frac{dx}{(x+5)\sqrt{x^2 + 10x + 24}}$ 401) _____

A) $\frac{\sec^{-1}(x+5)}{5} + C$ B) $\csc^{-1}(x+5) + C$ C) $\frac{\sin^{-1}(x+5)}{5} + C$ D) $\sec^{-1}(x+5) + C$

Find the limit.

402) $\lim_{x \to -1^+} \sin^{-1} x$ 402) _____

A) $\frac{\pi}{2}$ B) 1 C) –1 D) $-\frac{\pi}{2}$

Find the angle.

403) $\sec^{-1}\sqrt{2}$ 403) _____

A) $\frac{\pi}{4} \pm 2\pi n, \frac{7\pi}{4} \pm 2\pi n$ B) $\frac{3\pi}{4}$

C) $\frac{\pi}{4}$ D) $\frac{7\pi}{4}$

Rewrite the following without using trigonometric or inverse trigonometric functions.

404) $\tan\left(\sec^{-1}\frac{\sqrt{u^2+9}}{u}\right)$ 404) _____

A) $\frac{\sqrt{u^2+3}}{u^2+3}$ B) 3u C) $\frac{u\sqrt{u^2+9}}{u^2+9}$ D) $\frac{3}{u}$

Find the derivative of y with respect to x, t, or θ, as appropriate.

405) $y = x^4\ln x - \frac{1}{3}x^3$ 405) _____

A) $4x^3 - x^2$ B) $x^4\ln x - x^2 + 4x^3$

C) $x^3 - x^2 + 4x^3\ln x$ D) $5x^3 - x^2$

Find the derivative of y with respect to x.

406) $y = \tan^{-1}(\ln 2x)$ 406) _____

A) $\frac{2}{x(1+\ln^2 2x)}$ B) $\frac{1}{x(1+\ln^2 2x)}$ C) $\frac{1}{1+\ln^2 2x}$ D) $\frac{1}{x\sqrt{1+\ln^2 2x}}$

Solve the initial value problem.

407) $\frac{dy}{dx} = \frac{4}{x\sqrt{x^2 - 1}} + x^2,\ x > 1,\ y(2) = 2\pi$ 407) _____

A) $y = 4\sec^{-1} x + 2x - \frac{10}{3}\pi$

B) $y = 4\csc^{-1} x + \frac{x^3}{3} - 1\pi$

C) $y = 4\sec^{-1} x + \frac{x^3}{3} - 2\pi$

D) $y = 4\sin^{-1} x + \frac{x^3}{3}$

Solve the problem.

408) Find the area bounded by $y = \frac{2}{\sqrt{81 - 4x^2}}$, $x = 0$, $y = 0$, and $x = 3$. 408) _____

A) $\frac{2}{9}\tan^{-1}\left(\frac{1}{3}\right)$

B) $\sin^{-1}\left(\frac{2}{3}\right)$

C) $\frac{1}{9}\tan^{-1}\left(\frac{2}{3}\right)$

D) $\frac{1}{9}\sin^{-1}\left(\frac{2}{3}\right)$

Find the derivative of y with respect to x, t, or θ, as appropriate.

409) $y = \ln\left(\frac{e^\theta}{2 + e^\theta}\right)$ 409) _____

A) $\frac{2 + 2e^\theta}{2 + e^\theta}$

B) $\ln\left(\frac{2}{2 + e^\theta}\right)$

C) $\frac{2 + e^\theta}{e^\theta}$

D) $\frac{2}{2 + e^\theta}$

Evaluate the integral.

410) $\int \frac{e^{2\theta}}{1 + e^{2\theta}}\,d\theta$ 410) _____

A) $\frac{\ln(1 + 2e^\theta)}{2} + C$

B) $\ln(1 + e^{2\theta}) + C$

C) $\frac{\ln(1 + e^{2\theta})}{2} + C$

D) $2\ln(1 + e^{2\theta}) + C$

411) $\int \frac{dx}{x(4 + 8\ln x)}$ 411) _____

A) $\frac{1}{8}\ln|4 + 8\ln x| + C$

B) $\frac{1}{8}\ln|8 + 4\ln x| + C$

C) $\frac{1}{2}\ln|4 + 8\ln x| + C$

D) $\frac{1}{4}\ln|4 + 8\ln x| + C$

Rewrite the ratio as a ratio of natural logarithms and simplify.

412) $\frac{\log_{81} x}{\log_3 x}$ 412) _____

A) 3^3

B) $\frac{1}{3^3}$

C) $\ln 4$

D) $\frac{1}{4}$

A value of sinh x or cosh x is given. Use the definitions and the identity $\cosh^2 x - \sinh^2 x = 1$ to find the value of the other indicated hyperbolic function.

413) $\sinh x = \frac{12}{5}$, csch x = 413) _____

A) $\frac{13}{5}$

B) $\frac{5}{12}$

C) $\frac{169}{25}$

D) $-\frac{5}{12}$

Use logarithmic differentiation to find the derivative of y with respect to the independent variable.

414) $y = (x + 4)^{\sin x}$ 414) _____

A) $\sin x \ln(x + 4)$

B) $\left(\frac{-\cos x}{x + 4}\right)(x + 4)^{\sin x}$

C) $\cos x \ln(x + 4) + \frac{\sin x}{x + 4}$

D) $(x + 4)^{\sin x}\left(\cos x \ln(x + 4) + \frac{\sin x}{x + 4}\right)$

Find the domain and range of the inverse of the given function.

415) $f(x) = \sqrt{x - 6}$ 415) _____

A) Domain and range: all real numbers

B) Domain: $[6, \infty)$; range: $[6, \infty)$

C) Domain: $[0, \infty)$; range: $[6, \infty)$

D) Domain: $[6, \infty)$; range: $[0, \infty)$

Solve the problem.

416) Suppose that the amount of oil pumped from a well decreases at the continuous rate of 15% per year. When, to the nearest year, will the well's output fall to one-eighth of its present value? 416) _____

A) 21 years

B) 14 years

C) 2 years

D) 9 years

417) In a chemical reaction, the rate at which the amount of a reactant changes with time is proportional to the amount present, such that $\frac{dy}{dt} = -0.7y$, when t is measured in hours. If there are 61 g of reactant present when $t = 0$, how many grams will be left after 3 hours? Give your answer to the nearest tenth of a gram. 417) _____

A) 7.5 g

B) 11.2 g

C) 3.7 g

D) 0.1 g

Find the derivative of y with respect to the independent variable.

418) $y = 9^x$ 418) _____

A) $x \ln 9$

B) $9^x \ln 9$

C) $9^x \ln x$

D) 9^x

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

Determine if the statement is true or false as $x \to \infty$.

419) $6 + \cos x = O(6)$ 419) _____

420) $e^x = o(e^{8x})$ 420) _____

421) $\ln x = o(\ln 3x)$ 421) _____

422) $\ln x = o(\ln(x^2 + 5))$ 422) _____

423) $x = O(3x)$ 423) _____

424) $6x + \ln x = O(x)$ 424) _____

425) $2x^3 + \cos x = O(2x^2)$ 425) _____

426) $x = O(x + 5)$ 426) _____

427) $x = o(x + 1)$ 427) _____

428) $e^x + 9x = O(e^x)$ 428) _____

Answer Key
Testname: 155CH.7

1) A
ID: TCALC11W 7.2.4–1
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

2) $\cos^{-1} 2$, There is no angle whose cosine is 2.
ID: TCALC11W 7.7.13–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) •Know Concepts: Inverse Trig Functions

3) Let $y = x\ln ax - x + C$ and take its derivative. $\frac{dy}{dx} = (1)\ln ax + ax\left(\frac{1}{ax}\right) - 1 = \ln ax$

ID: TCALC11W 7.3.8–1
Diff: 0 Page Ref: 489–496
Objective: (7.3) •Know Concepts: The Exponential Function

4) The binary search. The sequential search could take up to a million steps. The binary search would take at most 20 steps.
ID: TCALC11W 7.6.3–4
Diff: 0 Page Ref: 514–518
Objective: (7.6) •Know Concepts: Relative Rates of Growth

5) Yes, They both have domains $-1 \le x \le 1$. They have the same basic shape with opposite slopes. Since the slopes are opposites the derivatives will be opposites.
ID: TCALC11W 7.7.13–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) •Know Concepts: Inverse Trig Functions

6) When x is positive these graphs are identical because they are both giving the same angle.
$\cos\theta = \frac{x}{\sqrt{x^2 + 1}} \leftrightarrow \tan\theta = \frac{1}{x}$. When x is negative both functions are still referring to the same angle. However, inverse cosine gives values between $\pi/2$ and π while inverse tangent gives values between $-\pi/2$ and 0.
ID: TCALC11W 7.7.13–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) •Know Concepts: Inverse Trig Functions

7) $f = O(g)$ but $g \neq O(f)$ except in the case where their degrees are equal.
ID: TCALC11W 7.6.3–1
Diff: 0 Page Ref: 514–518
Objective: (7.6) •Know Concepts: Relative Rates of Growth

8) When plugging in angles such that $\frac{-\pi}{2} \le x \le \frac{\pi}{2}$ the output is the same angle. However, the range of $y = \sin^{-1} x$ is $\frac{-\pi}{2} \le y \le \frac{\pi}{2}$. Therefore, when plugging in angles outside of that interval the output will be different.
Instead of getting back the same angle you are getting back the first or fourth quadrant angle whose sine is the same value. The overall result is a function going back and forth between 1 and –1 in a linear fashion.
ID: TCALC11W 7.7.13–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) •Know Concepts: Inverse Trig Functions

9) $f''(x) = -3e^x$. This is always negative so f(x) is always concave down.
ID: TCALC11W 7.3.8–3
Diff: 0 Page Ref: 489–496
Objective: (7.3) *Know Concepts: The Exponential Function

10) They are equal whenever $\log_a b$ is defined and $b \neq 1$. $\log_a b = (\ln b)/(\ln a)$. $1/\log_a b = 1/((\ln a)/(\ln b)) = (\ln b)/(\ln a)$.
ID: TCALC11W 7.4.8–1
Diff: 0 Page Ref: 498–503
Objective: (7.4) Know Concepts: Exponents and Logs

11) $\sec^{-1}(-x) = \cos^{-1}(-1/x) = \pi - \cos^{-1}(1/x) = \pi - \sec^{-1} x$
ID: TCALC11W 7.7.13–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) *Know Concepts: Inverse Trig Functions

12) $\frac{\ln 10}{\ln 4}\log_{10} x = \frac{\ln 10}{\ln 4} \cdot \frac{\ln x}{\ln 10} = \frac{\ln x}{\ln 4} = \log_4 x$

ID: TCALC11W 7.4.8–2
Diff: 0 Page Ref: 498–503
Objective: (7.4) Know Concepts: Exponents and Logs

13) $\lim_{x\to\infty} \frac{\ln(x+1)}{\ln x} = \lim_{x\to\infty} \frac{1/(x+1)}{1/x} = \lim_{x\to\infty} \frac{x}{x+1} = 1$

$\lim_{x\to\infty} \frac{\ln(x+9975)}{\ln x} = \lim_{x\to\infty} \frac{1/(x+9975)}{1/x} = \lim_{x\to\infty} \frac{x}{x+9975} = 1$

y = ln x, y = ln(x+1), and y = ln (x+9975) all grow at the same rate.
ID: TCALC11W 7.6.3–2
Diff: 0 Page Ref: 514–518
Objective: (7.6) *Know Concepts: Relative Rates of Growth

14) $f'(x) = e^x(2(x-4) + (x-4)^2)$. $f'(x) = 0$ at $x = 2$ and at $x = 4$. This is when the local min and local max of f(x) occur. Initially the function is increasing and $f'(x)$ is positive. It becomes negative at the same point that f(x) begins decreasing. It again becomes positive at the same point that f(x) begins increasing again.
ID: TCALC11W 7.3.8–2
Diff: 0 Page Ref: 489–496
Objective: (7.3) *Know Concepts: The Exponential Function

15) $\csc^{-1}\frac{1}{8}$, There is no angle whose cosecant is $\frac{1}{8}$.
ID: TCALC11W 7.7.13–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) *Know Concepts: Inverse Trig Functions

16) $\lim_{x\to\infty} \frac{\sqrt{x^6+x}}{x^3} = \lim_{x\to\infty} \frac{\sqrt{x^6+x}}{\sqrt{x^6}} = \lim_{x\to\infty} \sqrt{1+\frac{1}{x^5}} = 1$

$\lim_{x\to\infty} \frac{\sqrt{x^6+x^4}}{x^3} = \lim_{x\to\infty} \frac{\sqrt{x^6+x^4}}{\sqrt{x^6}} = \lim_{x\to\infty} \sqrt{1+\frac{1}{x^2}} = 1$

Therefore both functions grow at the same rate as $x\to\infty$.
ID: TCALC11W 7.6.3–3
Diff: 0 Page Ref: 514–518
Objective: (7.6) *Know Concepts: Relative Rates of Growth

17) D
ID: TCALC11W 7.3.7–5
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

18) C
ID: TCALC11W 7.3.6–4
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Initial Value Problem

19) C
ID: TCALC11W 7.3.3–1
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

20) A
ID: TCALC11W 7.8.5–8
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

21) D
ID: TCALC11W 7.8.1–10
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

22) C
ID: TCALC11W 7.7.4–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function

23) B
ID: TCALC11W 7.7.9–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function II

24) B
ID: TCALC11W 7.8.7–10
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

25) C
ID: TCALC11W 7.4.5–1
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

26) A
ID: TCALC11W 7.6.1–1
Diff: 0 Page Ref: 514–518
Objective: (7.6) Compare Growth Rates

27) A
ID: TCALC11W 7.7.11–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

28) C
ID: TCALC11W 7.1.2–7
Diff: 0 Page Ref: 469–475
Objective: (7.1) Graph Inverse of Function from Graph of Function

29) D
ID: TCALC11W 7.7.7–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Completing the Square

30) A
ID: TCALC11W 7.3.4–8
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find dy/dx Implicitly from Eqn w/ Log and Exp

31) D
ID: TCALC11W 7.3.5–9
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

32) D
ID: TCALC11W 7.7.5–7
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

33) A
ID: TCALC11W 7.8.3–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Hyperbolic Function

34) B
ID: TCALC11W 7.3.6–6
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Initial Value Problem

35) A
ID: TCALC11W 7.8.5–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

36) C
ID: TCALC11W 7.7.6–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution I

37) B
ID: TCALC11W 7.1.1–9
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

38) A
ID: TCALC11W 7.7.8–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution II

39) A
ID: TCALC11W 7.1.2–4
Diff: 0 Page Ref: 469–475
Objective: (7.1) Graph Inverse of Function from Graph of Function

40) B
ID: TCALC11W 7.8.10–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Solve Apps: Hyperbolic Functions

41) C
ID: TCALC11W 7.4.5–4
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

42) B
ID: TCALC11W 7.8.4–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

43) A
ID: TCALC11W 7.8.5–7
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

44) B
ID: TCALC11W 7.8.8–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Inverse Hyperbolic Function in Terms of Natural Log

45) B
ID: TCALC11W 7.7.10–9
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

46) D
ID: TCALC11W 7.8.1–7
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

47) A
ID: TCALC11W 7.8.10–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Solve Apps: Hyperbolic Functions

48) A
ID: TCALC11W 7.3.5–2
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

49) A
ID: TCALC11W 7.7.11–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

50) D
ID: TCALC11W 7.8.6–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

51) B
ID: TCALC11W 7.8.10–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Solve Apps: Hyperbolic Functions

52) D
ID: TCALC11W 7.8.8–8
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Inverse Hyperbolic Function in Terms of Natural Log

53) A
ID: TCALC11W 7.7.6–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution I

54) C
ID: TCALC11W 7.3.6–5
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Initial Value Problem

55) B
ID: TCALC11W 7.8.8–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Inverse Hyperbolic Function in Terms of Natural Log

56) B
ID: TCALC11W 7.3.1–5
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Value of Exp/Log Expression

57) C
ID: TCALC11W 7.3.7–2
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

58) C
ID: TCALC11W 7.8.1–9
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

59) B
ID: TCALC11W 7.8.5–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

60) B
ID: TCALC11W 7.7.10–8
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

61) A
ID: TCALC11W 7.7.4–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function

62) B
ID: TCALC11W 7.7.6–9
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution I

63) D
ID: TCALC11W 7.2.5–10
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

64) C
ID: TCALC11W 7.8.1–8
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

65) A
ID: TCALC11W 7.7.4–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function

66) A
ID: TCALC11W 7.7.3–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Write Inverse Function as Expression in u

67) C
ID: TCALC11W 7.7.7–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Completing the Square

68) D
ID: TCALC11W 7.3.6–2
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Initial Value Problem

69) C
ID: TCALC11W 7.7.9–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function II

70) D
ID: TCALC11W 7.8.6–7
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

71) B
ID: TCALC11W 7.4.5–3
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

72) D
ID: TCALC11W 7.7.2–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Inverse Expressions

73) B
ID: TCALC11W 7.4.1–8
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Logarithmic Expression

74) B
ID: TCALC11W 7.8.2–7
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

75) D
ID: TCALC11W 7.7.5–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

76) A
ID: TCALC11W 7.7.7–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Completing the Square

77) C
ID: TCALC11W 7.4.7–2
Diff: 0 Page Ref: 498–503
Objective: (7.4) Solve Apps: Exponents and Logs

78) D
ID: TCALC11W 7.6.1–4
Diff: 0 Page Ref: 514–518
Objective: (7.6) Compare Growth Rates

79) A
ID: TCALC11W 7.8.6–10
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

80) D
ID: TCALC11W 7.2.4–5
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

81) A
ID: TCALC11W 7.1.3–8
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine Inverse from Equation

82) B
ID: TCALC11W 7.3.5–1
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

83) A
ID: TCALC11W 7.7.8–7
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution II

84) B
ID: TCALC11W 7.4.2–4
Diff: 0 Page Ref: 498–503
Objective: (7.4) Rewrite Expression as a Ratio of Natural Logs

85) C
ID: TCALC11W 7.1.6–2
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Formula for Derivative of Inverse

86) A
ID: TCALC11W 7.8.1–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

87) A
ID: TCALC11W 7.7.8–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution II

88) A
ID: TCALC11W 7.5.1–1
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

89) C
ID: TCALC11W 7.7.11–8
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

90) C
ID: TCALC11W 7.4.4–6
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

91) B
ID: TCALC11W 7.2.4–9
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

92) D
ID: TCALC11W 7.8.2–10
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

93) C
ID: TCALC11W 7.4.1–2
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Logarithmic Expression

94) D
ID: TCALC11W 7.2.2–4
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

95) A
ID: TCALC11W 7.8.4–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

96) B
ID: TCALC11W 7.1.2–1
Diff: 0 Page Ref: 469–475
Objective: (7.1) Graph Inverse of Function from Graph of Function

97) C
ID: TCALC11W 7.1.5–4
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find the Value of Derivative of Inverse

98) B
ID: TCALC11W 7.8.5–10
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

99) B
ID: TCALC11W 7.2.5–2
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

100) D
ID: TCALC11W 7.2.4–10
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

101) A
ID: TCALC11W 7.4.4–5
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

102) D
ID: TCALC11W 7.8.4–7
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

103) B
ID: TCALC11W 7.7.10–7
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

104) A
ID: TCALC11W 7.4.1–1
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Logarithmic Expression

105) D
ID: TCALC11W 7.4.3–1
Diff: 0 Page Ref: 498–503
Objective: (7.4) Solve Exponential/Logarithmic Equation

106) D
ID: TCALC11W 7.2.4–6
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

107) B
ID: TCALC11W 7.3.2–10
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

108) C
ID: TCALC11W 7.5.1–6
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

109) C
ID: TCALC11W 7.5.1–10
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

110) B
ID: TCALC11W 7.8.9–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Integral in Terms of Natural Log

111) C
ID: TCALC11W 7.3.7–7
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

112) B
ID: TCALC11W 7.4.6–5
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

113) B
ID: TCALC11W 7.8.5–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

114) C
ID: TCALC11W 7.4.2–1
Diff: 0 Page Ref: 498–503
Objective: (7.4) Rewrite Expression as a Ratio of Natural Logs

115) B
ID: TCALC11W 7.7.3–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Write Inverse Function as Expression in u

116) A
ID: TCALC11W 7.8.7–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

117) B
ID: TCALC11W 7.7.10–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

118) A
ID: TCALC11W 7.7.8–8
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution II

119) C
ID: TCALC11W 7.4.3–2
Diff: 0 Page Ref: 498–503
Objective: (7.4) Solve Exponential/Logarithmic Equation

120) B
ID: TCALC11W 7.8.5–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

121) C
ID: TCALC11W 7.4.6–6
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

122) B
ID: TCALC11W 7.2.1–1
Diff: 0 Page Ref: 479–487
Objective: (7.2) Express as a Single Logarithm

123) B
ID: TCALC11W 7.1.6–4
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Formula for Derivative of Inverse

124) B
ID: TCALC11W 7.2.1–5
Diff: 0 Page Ref: 479–487
Objective: (7.2) Express as a Single Logarithm

125) B
ID: TCALC11W 7.8.8–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Inverse Hyperbolic Function in Terms of Natural Log

126) C
ID: TCALC11W 7.8.3–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Hyperbolic Function

127) C
ID: TCALC11W 7.2.2–7
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

128) B
ID: TCALC11W 7.3.2–8
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

129) B
ID: TCALC11W 7.4.5–9
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

130) B
ID: TCALC11W 7.4.4–7
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

131) B
ID: TCALC11W 7.8.9–7
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Integral in Terms of Natural Log

132) C
ID: TCALC11W 7.8.3–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Hyperbolic Function

133) C
ID: TCALC11W 7.5.1–7
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

134) C
ID: TCALC11W 7.7.12–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Apps: Inverse Trigonometric Functions

135) C
ID: TCALC11W 7.4.5–7
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

136) D
ID: TCALC11W 7.1.5–2
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find the Value of Derivative of Inverse

137) D
ID: TCALC11W 7.1.3–9
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine Inverse from Equation

138) C
ID: TCALC11W 7.7.8–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution II

139) B
ID: TCALC11W 7.8.10–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Solve Apps: Hyperbolic Functions

140) B
ID: TCALC11W 7.1.1–6
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

141) D
ID: TCALC11W 7.3.2–7
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

142) B
ID: TCALC11W 7.3.2–9
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

143) C
ID: TCALC11W 7.2.1–2
Diff: 0 Page Ref: 479–487
Objective: (7.2) Express as a Single Logarithm

144) C
ID: TCALC11W 7.7.12–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Apps: Inverse Trigonometric Functions

145) A
ID: TCALC11W 7.7.1–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Value of Inverse Trigonometric Function

146) D
ID: TCALC11W 7.1.4–2
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Domain and Range of Inverse

147) D
ID: TCALC11W 7.2.4–7
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

148) A
ID: TCALC11W 7.7.5–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

149) C
ID: TCALC11W 7.8.10–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Solve Apps: Hyperbolic Functions

150) D
ID: TCALC11W 7.8.9–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Integral in Terms of Natural Log

151) B
ID: TCALC11W 7.8.7–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

152) B
ID: TCALC11W 7.2.4–8
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

153) B
ID: TCALC11W 7.7.5–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

154) A
ID: TCALC11W 7.1.7–3
Diff: 0 Page Ref: 469–475
Objective: (7.1) Know Concepts: Inverse Functions and Their Derivatives

155) D
ID: TCALC11W 7.4.6–3
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

156) A
ID: TCALC11W 7.7.10–10
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

157) D
ID: TCALC11W 7.8.4–10
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

158) C
ID: TCALC11W 7.1.2–3
Diff: 0 Page Ref: 469–475
Objective: (7.1) Graph Inverse of Function from Graph of Function

159) D
ID: TCALC11W 7.8.6–8
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

160) A
ID: TCALC11W 7.8.7–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

161) B
ID: TCALC11W 7.7.5–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

162) C
ID: TCALC11W 7.1.4–7
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Domain and Range of Inverse

163) B
ID: TCALC11W 7.7.6–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution I

164) D
ID: TCALC11W 7.1.4–3
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Domain and Range of Inverse

165) B
ID: TCALC11W 7.7.8–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution II

166) A
ID: TCALC11W 7.1.1–2
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

167) D
ID: TCALC11W 7.8.4–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

168) C
ID: TCALC11W 7.2.3–2
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

169) B
ID: TCALC11W 7.4.3–3
Diff: 0 Page Ref: 498–503
Objective: (7.4) Solve Exponential/Logarithmic Equation

170) B
ID: TCALC11W 7.4.5–8
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

171) A
ID: TCALC11W 7.3.2–4
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

172) B
ID: TCALC11W 7.3.1–3
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Value of Exp/Log Expression

173) A
ID: TCALC11W 7.8.6–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

174) D
ID: TCALC11W 7.3.6–1
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Initial Value Problem

175) A
ID: TCALC11W 7.8.3–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Hyperbolic Function

176) D
ID: TCALC11W 7.2.4–4
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

177) D
ID: TCALC11W 7.7.5–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

178) B
ID: TCALC11W 7.7.11–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

179) D
ID: TCALC11W 7.7.3–8
Diff: 0 Page Ref: 520–533
Objective: (7.7) Write Inverse Function as Expression in u

180) C
ID: TCALC11W 7.4.6–8
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

181) C
ID: TCALC11W 7.7.3–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Write Inverse Function as Expression in u

182) A
ID: TCALC11W 7.8.6–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

183) B
ID: TCALC11W 7.8.5–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

184) B
ID: TCALC11W 7.8.4–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

185) C
ID: TCALC11W 7.1.2–5
Diff: 0 Page Ref: 469–475
Objective: (7.1) Graph Inverse of Function from Graph of Function

186) B
ID: TCALC11W 7.7.6–7
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution I

187) A
ID: TCALC11W 7.1.1–7
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

188) A
ID: TCALC11W 7.6.1–3
Diff: 0 Page Ref: 514–518
Objective: (7.6) Compare Growth Rates

189) C
ID: TCALC11W 7.3.3–6
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

190) A
ID: TCALC11W 7.3.4–7
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find dy/dx Implicitly from Eqn w/ Log and Exp

191) B
ID: TCALC11W 7.1.1–8
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

192) B
ID: TCALC11W 7.3.2–5
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

193) B
ID: TCALC11W 7.8.9–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Integral in Terms of Natural Log

194) C
ID: TCALC11W 7.7.5–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

195) C
ID: TCALC11W 7.7.4–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function

196) D
ID: TCALC11W 7.4.6–7
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

197) B
ID: TCALC11W 7.3.3–3
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

198) B
ID: TCALC11W 7.3.3–2
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

199) A
ID: TCALC11W 7.7.7–8
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Completing the Square

200) D
ID: TCALC11W 7.1.4–5
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Domain and Range of Inverse

201) B
ID: TCALC11W 7.4.1–4
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Logarithmic Expression

202) C
ID: TCALC11W 7.2.3–1
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

203) B
ID: TCALC11W 7.8.5–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

204) D
ID: TCALC11W 7.7.12–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Apps: Inverse Trigonometric Functions

205) C
ID: TCALC11W 7.4.3–4
Diff: 0 Page Ref: 498–503
Objective: (7.4) Solve Exponential/Logarithmic Equation

206) B
ID: TCALC11W 7.1.1–5
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

207) D
ID: TCALC11W 7.3.7–4
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

208) A
ID: TCALC11W 7.3.5–5
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

209) A
ID: TCALC11W 7.8.9–8
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Integral in Terms of Natural Log

210) B
ID: TCALC11W 7.7.7–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Completing the Square

211) B
ID: TCALC11W 7.3.7–1
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

212) B
ID: TCALC11W 7.1.1–10
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

213) C
ID: TCALC11W 7.4.1–3
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Logarithmic Expression

214) C
ID: TCALC11W 7.1.7–2
Diff: 0 Page Ref: 469–475
Objective: (7.1) Know Concepts: Inverse Functions and Their Derivatives

215) D
ID: TCALC11W 7.7.6–8
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution I

216) B
ID: TCALC11W 7.7.6–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution I

217) C
ID: TCALC11W 7.2.5–3
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

218) D
ID: TCALC11W 7.7.1–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Value of Inverse Trigonometric Function

219) D
ID: TCALC11W 7.8.7–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

220) A
ID: TCALC11W 7.3.5–7
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

221) A
ID: TCALC11W 7.3.1–6
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Value of Exp/Log Expression

222) B
ID: TCALC11W 7.4.6–2
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

223) A
ID: TCALC11W 7.7.11–9
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

224) C
ID: TCALC11W 7.1.5–3
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find the Value of Derivative of Inverse

225) B
ID: TCALC11W 7.4.1–6
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Logarithmic Expression

226) B
ID: TCALC11W 7.7.10–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

227) B
ID: TCALC11W 7.1.4–6
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Domain and Range of Inverse

228) B
ID: TCALC11W 7.7.11–7
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

229) B
ID: TCALC11W 7.7.10–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

230) A
ID: TCALC11W 7.3.4–4
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find dy/dx Implicitly from Eqn w/ Log and Exp

231) C
ID: TCALC11W 7.2.5–7
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

232) D
ID: TCALC11W 7.3.4–6
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find dy/dx Implicitly from Eqn w/ Log and Exp

233) B
ID: TCALC11W 7.8.3–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Hyperbolic Function

234) B
ID: TCALC11W 7.3.7–6
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

235) D
ID: TCALC11W 7.2.4–3
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

236) B
ID: TCALC11W 7.4.4–8
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

237) C
ID: TCALC11W 7.8.1–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

238) B
ID: TCALC11W 7.2.2–6
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

239) A
ID: TCALC11W 7.4.1–7
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Logarithmic Expression

240) D
ID: TCALC11W 7.8.2–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

241) C
ID: TCALC11W 7.8.7–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

242) C
ID: TCALC11W 7.4.6–9
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

243) A
ID: TCALC11W 7.1.6–3
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Formula for Derivative of Inverse

244) A
ID: TCALC11W 7.2.2–3
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

245) D
ID: TCALC11W 7.3.4–2
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find dy/dx Implicitly from Eqn w/ Log and Exp

246) D
ID: TCALC11W 7.3.6–3
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Initial Value Problem

247) C
ID: TCALC11W 7.7.3–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Write Inverse Function as Expression in u

248) B
ID: TCALC11W 7.7.11–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

249) C
ID: TCALC11W 7.5.1–2
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

250) A
ID: TCALC11W 7.3.6–8
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Initial Value Problem

251) C
ID: TCALC11W 7.3.5–8
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

252) A
ID: TCALC11W 7.3.6–7
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Initial Value Problem

253) D
ID: TCALC11W 7.2.2–1
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

254) B
ID: TCALC11W 7.8.4–9
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

255) B
ID: TCALC11W 7.8.3–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Hyperbolic Function

256) C
ID: TCALC11W 7.3.7–8
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

257) D
ID: TCALC11W 7.3.1–4
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Value of Exp/Log Expression

258) D
ID: TCALC11W 7.2.3–8
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

259) D
ID: TCALC11W 7.1.2–2
Diff: 0 Page Ref: 469–475
Objective: (7.1) Graph Inverse of Function from Graph of Function

260) A
ID: TCALC11W 7.1.1–1
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

261) D
ID: TCALC11W 7.7.7–7
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Completing the Square

262) C
ID: TCALC11W 7.8.6–9
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

263) A
ID: TCALC11W 7.2.5–6
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

264) D
ID: TCALC11W 7.7.1–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Value of Inverse Trigonometric Function

265) B
ID: TCALC11W 7.2.2–2
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

266) C
ID: TCALC11W 7.1.3–7
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine Inverse from Equation

267) A
ID: TCALC11W 7.3.4–5
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find dy/dx Implicitly from Eqn w/ Log and Exp

268) B
ID: TCALC11W 7.7.12–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Apps: Inverse Trigonometric Functions

269) A
ID: TCALC11W 7.7.6–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution I

270) D
ID: TCALC11W 7.8.9–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Integral in Terms of Natural Log

271) B
ID: TCALC11W 7.8.7–7
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

272) A
ID: TCALC11W 7.1.7–1
Diff: 0 Page Ref: 469–475
Objective: (7.1) Know Concepts: Inverse Functions and Their Derivatives

273) C
ID: TCALC11W 7.5.1–5
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

274) D
ID: TCALC11W 7.8.4–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

275) D
ID: TCALC11W 7.4.4–4
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

276) D
ID: TCALC11W 7.1.4–1
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Domain and Range of Inverse

277) D
ID: TCALC11W 7.2.3–9
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

278) C
ID: TCALC11W 7.4.5–5
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

279) B
ID: TCALC11W 7.7.7–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Completing the Square

280) D
ID: TCALC11W 7.1.7–4
Diff: 0 Page Ref: 469–475
Objective: (7.1) Know Concepts: Inverse Functions and Their Derivatives

281) B
ID: TCALC11W 7.2.2–9
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

282) D
ID: TCALC11W 7.4.6–1
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

283) A
ID: TCALC11W 7.4.7–4
Diff: 0 Page Ref: 498–503
Objective: (7.4) Solve Apps: Exponents and Logs

284) B
ID: TCALC11W 7.2.3–4
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

285) C
ID: TCALC11W 7.7.2–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Inverse Expressions

286) A
ID: TCALC11W 7.3.4–1
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find dy/dx Implicitly from Eqn w/ Log and Exp

287) C
ID: TCALC11W 7.4.6–10
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

288) B
ID: TCALC11W 7.1.5–1
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find the Value of Derivative of Inverse

289) B
ID: TCALC11W 7.8.1–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

290) D
ID: TCALC11W 7.7.8–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution II

291) A
ID: TCALC11W 7.7.9–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function II

292) D
ID: TCALC11W 7.8.2–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

293) A
ID: TCALC11W 7.4.7–1
Diff: 0 Page Ref: 498–503
Objective: (7.4) Solve Apps: Exponents and Logs

294) B
ID: TCALC11W 7.7.10–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

295) B
ID: TCALC11W 7.2.5–4
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

296) A
ID: TCALC11W 7.8.4–8
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

297) C
ID: TCALC11W 7.2.5–8
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

298) C
ID: TCALC11W 7.3.1–1
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Value of Exp/Log Expression

299) B
ID: TCALC11W 7.8.2–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

300) B
ID: TCALC11W 7.5.1–3
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

301) A
ID: TCALC11W 7.8.10–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Solve Apps: Hyperbolic Functions

302) C
ID: TCALC11W 7.8.2–9
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

303) A
ID: TCALC11W 7.1.6–1
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Formula for Derivative of Inverse

304) A
ID: TCALC11W 7.3.5–4
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

305) D
ID: TCALC11W 7.7.3–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Write Inverse Function as Expression in u

306) A
ID: TCALC11W 7.4.4–2
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

307) B
ID: TCALC11W 7.2.3–10
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

308) C
ID: TCALC11W 7.7.2–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Inverse Expressions

309) D
ID: TCALC11W 7.1.3–1
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine Inverse from Equation

310) C
ID: TCALC11W 7.8.2–4
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

311) B
ID: TCALC11W 7.1.3–5
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine Inverse from Equation

312) B
ID: TCALC11W 7.2.1–4
Diff: 0 Page Ref: 479–487
Objective: (7.2) Express as a Single Logarithm

313) B
ID: TCALC11W 7.3.3–5
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

314) A
ID: TCALC11W 7.8.6–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

315) A
ID: TCALC11W 7.2.5–5
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

316) C
ID: TCALC11W 7.6.1–2
Diff: 0 Page Ref: 514–518
Objective: (7.6) Compare Growth Rates

317) C
ID: TCALC11W 7.8.7–9
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

318) B
ID: TCALC11W 7.4.2–2
Diff: 0 Page Ref: 498–503
Objective: (7.4) Rewrite Expression as a Ratio of Natural Logs

319) B
ID: TCALC11W 7.8.3–7
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Hyperbolic Function

320) B
ID: TCALC11W 7.7.3–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Write Inverse Function as Expression in u

321) C
ID: TCALC11W 7.2.5–9
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

322) C
ID: TCALC11W 7.2.3–7
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

323) D
ID: TCALC11W 7.1.2–6
Diff: 0 Page Ref: 469–475
Objective: (7.1) Graph Inverse of Function from Graph of Function

324) A
ID: TCALC11W 7.7.9–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function II

325) B
ID: TCALC11W 7.8.8–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Inverse Hyperbolic Function in Terms of Natural Log

326) C
ID: TCALC11W 7.8.7–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

327) C
ID: TCALC11W 7.4.4–3
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

328) D
ID: TCALC11W 7.1.3–2
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine Inverse from Equation

329) B
ID: TCALC11W 7.8.9–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Integral in Terms of Natural Log

330) A
ID: TCALC11W 7.1.4–8
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Domain and Range of Inverse

331) A
ID: TCALC11W 7.7.1–7
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Value of Inverse Trigonometric Function

332) C
ID: TCALC11W 7.7.2–7
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Inverse Expressions

333) B
ID: TCALC11W 7.7.10–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

334) A
ID: TCALC11W 7.4.6–4
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Integral of General Exponential Func

335) A
ID: TCALC11W 7.3.2–3
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

336) B
ID: TCALC11W 7.3.7–10
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

337) B
ID: TCALC11W 7.1.3–6
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine Inverse from Equation

338) A
ID: TCALC11W 7.3.2–1
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

339) A
ID: TCALC11W 7.7.10–6
Diff: 0 Page Ref: 520–533
Objective: (7.7) Check Integration Formula

340) A
ID: TCALC11W 7.7.4–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function

341) A
ID: TCALC11W 7.8.2–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

342) B
ID: TCALC11W 7.3.7–3
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

343) D
ID: TCALC11W 7.3.5–3
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

344) A
ID: TCALC11W 7.4.7–3
Diff: 0 Page Ref: 498–503
Objective: (7.4) Solve Apps: Exponents and Logs

345) D
ID: TCALC11W 7.8.6–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

346) B
ID: TCALC11W 7.3.3–7
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

347) D
ID: TCALC11W 7.6.1–5
Diff: 0 Page Ref: 514–518
Objective: (7.6) Compare Growth Rates

348) C
ID: TCALC11W 7.7.6–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution I

349) D
ID: TCALC11W 7.2.3–6
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

350) C
ID: TCALC11W 7.8.8–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Inverse Hyperbolic Function in Terms of Natural Log

351) C
ID: TCALC11W 7.4.1–5
Diff: 0 Page Ref: 498–503
Objective: (7.4) Evaluate Logarithmic Expression

352) A
ID: TCALC11W 7.3.3–9
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

353) D
ID: TCALC11W 7.3.2–6
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

354) D
ID: TCALC11W 7.8.8–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Inverse Hyperbolic Function in Terms of Natural Log

355) B
ID: TCALC11W 7.4.5–2
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

356) D
ID: TCALC11W 7.3.2–2
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Exp/Log Equation for Variable

357) D
ID: TCALC11W 7.2.1–6
Diff: 0 Page Ref: 479–487
Objective: (7.2) Express as a Single Logarithm

358) D
ID: TCALC11W 7.8.4–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Derivative of Inverse Hyperbolic Function

359) D
ID: TCALC11W 7.7.5–10
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

360) B
ID: TCALC11W 7.8.8–7
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Inverse Hyperbolic Function in Terms of Natural Log

361) A
ID: TCALC11W 7.7.5–8
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

362) B
ID: TCALC11W 7.8.9–1
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Integral in Terms of Natural Log

363) D
ID: TCALC11W 7.8.1–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

364) C
ID: TCALC11W 7.4.5–10
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

365) D
ID: TCALC11W 7.2.2–8
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

366) B
ID: TCALC11W 7.3.5–6
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

367) D
ID: TCALC11W 7.7.11–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

368) B
ID: TCALC11W 7.3.3–10
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

369) D
ID: TCALC11W 7.8.2–8
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

370) B
ID: TCALC11W 7.5.1–8
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

371) C
ID: TCALC11W 7.2.5–1
Diff: 0 Page Ref: 479–487
Objective: (7.2) Solve Apps: Differentiation/Integration Involving Natural Logs

372) B
ID: TCALC11W 7.7.1–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Value of Inverse Trigonometric Function

373) C
ID: TCALC11W 7.2.1–3
Diff: 0 Page Ref: 479–487
Objective: (7.2) Express as a Single Logarithm

374) B
ID: TCALC11W 7.2.3–3
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

375) D
ID: TCALC11W 7.8.7–8
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

376) A
ID: TCALC11W 7.2.4–2
Diff: 0 Page Ref: 479–487
Objective: (7.2) Perform Logarithmic Differentiation

377) D
ID: TCALC11W 7.8.1–3
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

378) C
ID: TCALC11W 7.7.12–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Apps: Inverse Trigonometric Functions

379) B
ID: TCALC11W 7.3.3–4
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

380) C
ID: TCALC11W 7.7.2–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Inverse Expressions

381) A
ID: TCALC11W 7.7.2–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Inverse Expressions

382) C
ID: TCALC11W 7.2.2–10
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

383) A
ID: TCALC11W 7.1.1–4
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

384) D
ID: TCALC11W 7.3.7–9
Diff: 0 Page Ref: 489–496
Objective: (7.3) Solve Apps: The Exponential Function

385) C
ID: TCALC11W 7.7.11–4
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

386) A
ID: TCALC11W 7.7.1–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Value of Inverse Trigonometric Function

387) B
ID: TCALC11W 7.6.1–6
Diff: 0 Page Ref: 514–518
Objective: (7.6) Compare Growth Rates

388) D
ID: TCALC11W 7.7.2–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Inverse Expressions

389) D
ID: TCALC11W 7.1.3–3
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine Inverse from Equation

390) D
ID: TCALC11W 7.3.4–3
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find dy/dx Implicitly from Eqn w/ Log and Exp

391) D
ID: TCALC11W 7.8.6–2
Diff: 0 Page Ref: 538–545
Objective: (7.8) Evaluate Indefinite Integral (Hyperbolic Function)

392) B
ID: TCALC11W 7.1.1–3
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine If Function is One–to–One (Y/N)

393) C
ID: TCALC11W 7.8.2–6
Diff: 0 Page Ref: 538–545
Objective: (7.8) Write Hyperbolic Function in Terms of Exponential Functions

394) B
ID: TCALC11W 7.4.4–10
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

395) B
ID: TCALC11W 7.8.5–9
Diff: 0 Page Ref: 538–545
Objective: (7.8) Check Integration Formula

396) B
ID: TCALC11W 7.3.1–7
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Value of Exp/Log Expression

397) B
ID: TCALC11W 7.4.4–9
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

398) B
ID: TCALC11W 7.1.3–4
Diff: 0 Page Ref: 469–475
Objective: (7.1) Determine Inverse from Equation

399) D
ID: TCALC11W 7.7.8–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Substitution II

400) A
ID: TCALC11W 7.3.1–2
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Value of Exp/Log Expression

401) D
ID: TCALC11W 7.7.7–2
Diff: 0 Page Ref: 520–533
Objective: (7.7) Evaluate Integral: Completing the Square

402) D
ID: TCALC11W 7.7.4–1
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Limit: Inverse Trig Function

403) C
ID: TCALC11W 7.7.1–5
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Value of Inverse Trigonometric Function

404) D
ID: TCALC11W 7.7.3–7
Diff: 0 Page Ref: 520–533
Objective: (7.7) Write Inverse Function as Expression in u

405) C
ID: TCALC11W 7.2.2–5
Diff: 0 Page Ref: 479–487
Objective: (7.2) Find Derivative of Natural Logarithm

406) B
ID: TCALC11W 7.7.5–9
Diff: 0 Page Ref: 520–533
Objective: (7.7) Find Derivative: Inverse Trig Function

407) C
ID: TCALC11W 7.7.11–10
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Initial Value Problem

408) B
ID: TCALC11W 7.7.12–3
Diff: 0 Page Ref: 520–533
Objective: (7.7) Solve Apps: Inverse Trigonometric Functions

409) D
ID: TCALC11W 7.3.3–8
Diff: 0 Page Ref: 489–496
Objective: (7.3) Find Derivative of Natural Exponential

410) C
ID: TCALC11W 7.3.5–10
Diff: 0 Page Ref: 489–496
Objective: (7.3) Evaluate Integral of Natural Exponential Func

411) A
ID: TCALC11W 7.2.3–5
Diff: 0 Page Ref: 479–487
Objective: (7.2) Evaluate Integral That Yields Natural Log

412) D
ID: TCALC11W 7.4.2–3
Diff: 0 Page Ref: 498–503
Objective: (7.4) Rewrite Expression as a Ratio of Natural Logs

413) B
ID: TCALC11W 7.8.1–5
Diff: 0 Page Ref: 538–545
Objective: (7.8) Find Values of Hyperbolic Function

414) D
ID: TCALC11W 7.4.5–6
Diff: 0 Page Ref: 498–503
Objective: (7.4) Perform Logarithmic Differentiation

415) C
ID: TCALC11W 7.1.4–4
Diff: 0 Page Ref: 469–475
Objective: (7.1) Find Domain and Range of Inverse

416) B
ID: TCALC11W 7.5.1–9
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

417) A
ID: TCALC11W 7.5.1–4
Diff: 0 Page Ref: 505–511
Objective: (7.5) Solve Apps: Exponential Growth and Decay

418) B
ID: TCALC11W 7.4.4–1
Diff: 0 Page Ref: 498–503
Objective: (7.4) Find Derivative of General Exponential

419) TRUE
ID: TCALC11W 7.6.2–8
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)

420) TRUE
ID: TCALC11W 7.6.2–2
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)

421) FALSE
ID: TCALC11W 7.6.2–3
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)

422) FALSE
ID: TCALC11W 7.6.2–10
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)

423) TRUE
ID: TCALC11W 7.6.2–5
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)

424) TRUE
ID: TCALC11W 7.6.2–6
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)

425) FALSE
ID: TCALC11W 7.6.2–9
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)

426) TRUE
ID: TCALC11W 7.6.2–4
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)

427) FALSE
ID: TCALC11W 7.6.2–1
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)

428) TRUE
ID: TCALC11W 7.6.2–7
Diff: 0 Page Ref: 514–518
Objective: (7.6) Use Big–oh and Little–oh Notation (T/F)