

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 $\int \ln x \, dx = x \ln x - x + C$. 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:
 $\cos^{-1}(-x) = \pi - \cos^{-1} x$
 $\sec^{-1} x = \cos^{-1}(1/x)$ 11) _____
- 12) Show that the equation for converting base 10 logarithms to base 4 logarithms is
 $\log_4 x = \frac{\ln 10}{\ln 4} \log_{10} x$. 12) _____

- 13) Show that $\lim_{x \rightarrow \infty} \frac{\ln(x+1)}{\ln x} = \lim_{x \rightarrow \infty} \frac{\ln(x+9975)}{\ln x}$. 13) _____
 Explain why this is the case.
- 14) Graph $f(x) = (x-4)^{2e^x}$ 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 $x \rightarrow \infty$ by showing that they both grow at the same rate as $y = x^3$ as $x \rightarrow \infty$. 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) $\lim_{x \rightarrow \infty} \tan^{-1} x$ 22) _____
 A) $\frac{\pi}{2}$ B) 0 C) $-\frac{\pi}{2}$ D) $-\infty$
- 23) $\lim_{x \rightarrow \infty} x \tan^{-1} \frac{6}{x}$ 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 $x \rightarrow \infty$.

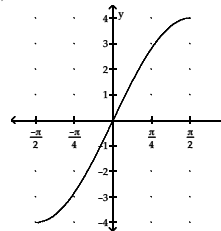
- 26) $y = x+7$ 26) _____
 $y = e^x$
 $y = x^2 + \cos^2 x$
 $y = 6^x$
- A) Slowest: $y = x+7$ B) Slowest: $y = e^x$
 Fastest: $y = 6^x$ Fastest: $y = x^2 + \cos^2 x$
- C) Slowest: $y = x+7$ D) Slowest: $y = x+7$
 Fastest: $y = e^x$ Fastest: $y = x^2 + \cos^2 x$

Solve the initial value problem.

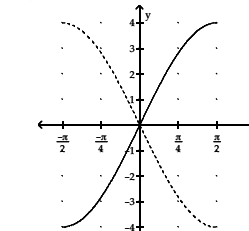
- 27) $\frac{dy}{dx} = \frac{8}{16+x^2}$, $y(0) = -3$ 27) _____
- A) $y = 2 \tan^{-1} \frac{x}{4} - 3$ B) $y = \tan^{-1} \frac{x}{4} - 3$ C) $y = 2 \cot^{-1} \frac{x}{4} - 3$ D) $y = \tan^{-1} \frac{x}{4}$

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

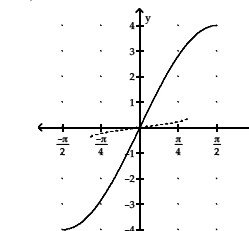
28) 28) _____



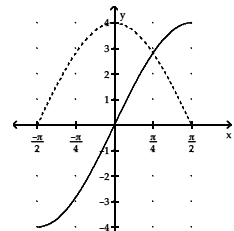
A)



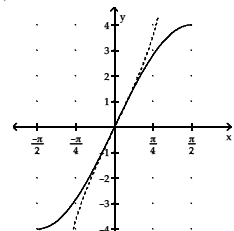
C)



B)



D)



Evaluate the integral.

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

- A) Undefined B) $\frac{\pi}{12}$ C) $\frac{\pi}{10} + \frac{\sqrt{5}}{2}$ D) $\frac{\pi}{6}$

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

$$30) 6x + y = y \ln 6$$

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

Evaluate the integral.

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

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

Find the derivative of y with respect to x .

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

- 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 .

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

- 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.

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

- 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.

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

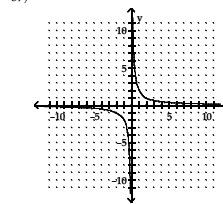
- A) Yes B) No

Evaluate the integral.

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

- 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?



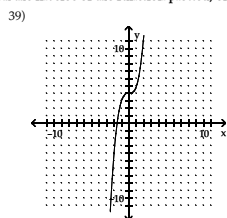
- A) No B) Yes

Evaluate the integral.

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

- 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.



- A) B)
C) D)

Solve the problem.

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

- 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.

$$41) y = x^3 \sin x$$

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

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

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

- 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.

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

- A) No B) Yes

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

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

- 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.

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

- 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.

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

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

Solve the problem.

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

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

Evaluate the integral.

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

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

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) $\int \coth(5x) dx$

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 $x = \ln \sqrt{5}$.

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) $\cosh^{-1} 4$

A) $\ln(4 + \sqrt{17})$

B) $\ln(8)$

C) $\ln(4 - \sqrt{15})$

D) $\ln(4 + \sqrt{15})$

Evaluate the integral.

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

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

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) $98x + \frac{1}{7} \ln |36 + 49x^2| + C$

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

Solve the initial value problem.

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

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

A) $\ln \left(\frac{-3}{4} + \sqrt{10} \right)$

B) $\ln \frac{1}{2}$

C) $\ln 2$

D) $\ln(4)$

Simplify the expression.

56) $6 \ln \frac{6}{e}$

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 $[0, 2]$.

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

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

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

C) $\frac{8}{17}$

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

Determine whether the integration formula is correct.

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

A) No

B) Yes

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

A) No

B) Yes

Find the limit.

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

A) π

B) 1

C) -1

D) 0

Evaluate the integral.

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

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:

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

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

A) $-\frac{5}{13}$

B) $\frac{12}{13}$

C) $-\frac{13}{12}$

D) $-\frac{12}{5}$

Find the limit.

65) $\lim_{x \rightarrow \pi} \cot^{-1} x$

A) 0

B) ∞

C) $\frac{\pi}{2}$

D) π

Rewrite the following without using trigonometric or inverse trigonometric functions.

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

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

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

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

A) $\frac{1}{7}$

B) 1

C) $\frac{8}{7}$

D) -8

Evaluate the integral.

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

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

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

A) $-\frac{1}{2}$

B) 1

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

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

Simplify the expression.

73) $9^{\log_3 x}$

A) \sqrt{x}

B) x^2

C) 2

D) 3^2

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

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

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

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

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 $[\text{H}_3\text{O}^+]$.

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 $x \rightarrow \infty$.

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.

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

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

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

Evaluate the integral.

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

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

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

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

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

13

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) $e^{\pi/6}$

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

84) $\frac{\log_6 \sqrt{3} x}{\log_6 \sqrt{2} x}$

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

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

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

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

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) $\frac{1}{8}$

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

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

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 $y = y_0 e^{kt}$.

A) -0.00030

B) 0.00030

C) 0.02638

D) -0.03046

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

14

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

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

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

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}

Simplify the expression.

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

A) 6

B) 0

C) -1

D) 1

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

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

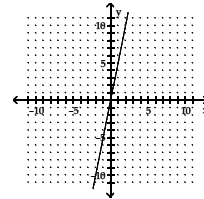
C) $(2\theta + 5) \tanh^{-1}(\theta + 4) - \frac{\theta^2 + 5\theta}{1 + (\theta + 4)^2}$

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

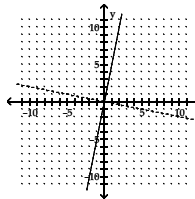
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Graph the inverse of the function plotted, on the same set of axes. Use a dashed curve for the inverse.

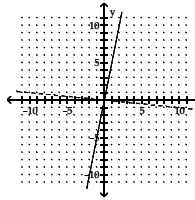
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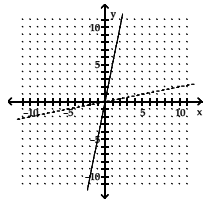
A)



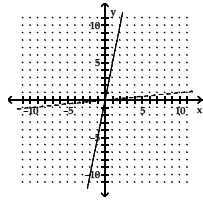
C)



B)



D)



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

Determine whether the integration formula is correct.

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

A) Yes

B) No

16

Solve the problem.

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

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

- 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) $y = (\ln 80)^{\pi}$

- A) $\frac{\pi}{80} (\ln 80)^{\pi-1}$ B) $\frac{\pi}{80} (\ln 80)^{\pi-1}$ C) $\pi (\ln 80)^{\pi-1}$ D) $(80)^{\pi} \ln \pi$

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

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

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

- A) Yes B) No

Simplify the expression.

104) $\log_8 512$

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

Solve the equation for x.

105) $2^{\log_3 10} + 4^{\log_3 4} = 8^{\log_8 x}$

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

17

Use logarithmic differentiation to find the derivative of y.

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

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

- 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.

- 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.

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

- 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 $y = \ln 4x$.

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

Evaluate the integral.

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

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

- A) No B) Yes

18

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

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

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

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

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

Determine whether the integration formula is correct.

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

- A) No B) Yes

Evaluate the integral.

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

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

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

Determine whether the integration formula is correct.

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

- A) No B) Yes

Evaluate the integral.

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

- 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

19

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

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

- 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) $f(x) = x^3/3$

- 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) $\ln(7 \sec \theta) + \ln(7 \cos \theta)$

- 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) $\coth^{-1} \left(\frac{4}{5} \right)$

- 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) $y = \sinh^2 8x$

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

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

- 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) $y = (9x + 10)^x$

- 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) $y = 4 \ln 2t$

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

20

Evaluate the integral in terms of natural logarithms.

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

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

Find the derivative of y.

$$132) y = \operatorname{csch} \frac{12x}{15} \quad 132) \quad \underline{\hspace{2cm}}$$

- A) $\frac{12}{15} \operatorname{csch} \frac{12x}{15} \coth \frac{12x}{15}$ B) $-\operatorname{csch} \frac{12x}{15} \coth \frac{12x}{15}$
C) $-\frac{12}{15} \operatorname{csch} \frac{12x}{15} \coth \frac{12x}{15}$ D) $\operatorname{csch} \frac{12x}{15} \coth \frac{12x}{15}$

Solve the problem.

$$133) \text{ The intensity } L(x) \text{ of light } x \text{ ft beneath the surface of a lake satisfies the differential equation } \frac{dL}{dx} = -0.09L. \text{ At what depth, to the nearest foot, is the intensity one tenth the intensity at the surface?} \quad 133) \quad \underline{\hspace{2cm}}$$

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

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

- 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.

$$135) y = (\ln x)^{\ln x} \quad 135) \quad \underline{\hspace{2cm}}$$

- 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 $x = f(a)$.

$$136) f(x) = \frac{1}{5}x + 6, a = 3 \quad 136) \quad \underline{\hspace{2cm}}$$

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

Find the inverse of the function.

$$137) f(x) = (x - 7)^2, x \geq 7 \quad 137) \quad \underline{\hspace{2cm}}$$

- A) $f^{-1}(x) = \sqrt{x - 7}, x \geq 7$ B) Not a one-to-one function
C) $f^{-1}(x) = -\sqrt{x + 7}, x \geq 0$ D) $f^{-1}(x) = \sqrt{x + 7}, x \geq 0$

Evaluate the integral.

$$138) \int \frac{(\sin^{-1} x)^3}{\sqrt{1 - x^2}} \, dx \quad 138) \quad \underline{\hspace{2cm}}$$

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

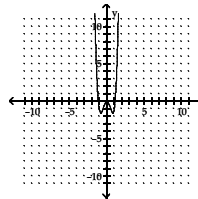
Solve the problem.

$$139) \text{ The velocity of a body of mass } m \text{ falling from rest under the action of gravity is given by the equation } v = \sqrt{\frac{mg}{k} \tanh \left(\sqrt{\frac{gk}{m}} t \right)}, \text{ where } k \text{ is a constant that depends on the body's aerodynamic} \quad 139) \quad \underline{\hspace{2cm}}$$

- 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, $\lim_{t \rightarrow \infty} v$, of a 200 lb. skydiver ($mg = 200$) when $k = .006$.
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?

$$140) \quad 140) \quad \underline{\hspace{2cm}}$$



- A) Yes B) No

Solve for y or k, as appropriate.

$$141) e^{k/970} = t \quad 141) \quad \underline{\hspace{2cm}}$$

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

$$142) e^{\sqrt{k}} = x^4 \quad 142) \quad \underline{\hspace{2cm}}$$

- 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.

$$143) \ln \cos \theta - \ln \left(\frac{\cos \theta}{6} \right) \quad 143) \quad \underline{\hspace{2cm}}$$

- 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.

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

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

Find the angle.

$$145) \cot^{-1}(-1) \quad 145) \quad \underline{\hspace{2cm}}$$

- 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.

$$146) f(x) = \frac{1}{6}x - 8 \quad 146) \quad \underline{\hspace{2cm}}$$

- 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.

$$147) y = \frac{x\sqrt{x^5 + 3}}{(x + 8)^{2/3}} \quad 147) \quad \underline{\hspace{2cm}}$$

- 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.

$$148) y = \sin^{-1} \left(\frac{1}{x^3} \right) \quad 148) \quad \underline{\hspace{2cm}}$$

- 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.

$$149) \text{ The velocity of a body of mass } m \text{ falling from rest under the action of gravity is given by the equation } v = \sqrt{\frac{mg}{k} \tanh \left(\sqrt{\frac{gk}{m}} t \right)}, \text{ where } k \text{ is a constant that depends on the body's aerodynamic} \quad 149) \quad \underline{\hspace{2cm}}$$

- 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, $\lim_{t \rightarrow \infty} v$, of a 320 lb. skydiver ($mg = 320$) when $k = .006$.
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.

$$150) \int_{6/5}^{3/2} \frac{dx}{1 - x^2} \quad 150) \quad \underline{\hspace{2cm}}$$

- 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.

$$151) \int_{\ln 2}^{\ln 6} 6e^t \cosh t \, dt \quad 151) \quad \underline{\hspace{2cm}}$$

- 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.

$$152) y = \sqrt[3]{\frac{x(x-7)}{x^4 + 5}} \quad 152) \quad \underline{\hspace{2cm}}$$

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

Find the derivative of y with respect to x.

$$153) y = 3 \sin^{-1}(4x^4) \quad 153) \quad \underline{\hspace{2cm}}$$

- 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.

$$154) \text{ Consider a linear function that is perpendicular to the line } y = x. \text{ Will this function be its own inverse? Explain.} \quad 154) \quad \underline{\hspace{2cm}}$$

- 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.

$$155) \int_0^{\pi/2} 5 \cos t \sin t \, dt \quad 155) \quad \underline{\hspace{2cm}}$$

- 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.

$$156) \int x^2 \cos^{-1} x \, dx = \frac{1}{3} x^3 \cos^{-1} x - \int \frac{x^3 \, dx}{1 - x^2} + C \quad 156) \quad \underline{\hspace{2cm}}$$

- A) No B) Yes

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

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

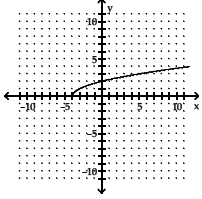
A) $\ln \left(\frac{1}{\sqrt{1-x^2}} \right) \sin x$
C) $\frac{-7 \sin x}{1 + \cos^2 x}$

B) $\frac{-7}{\cos x}$
D) $\frac{-7}{\sin x}$

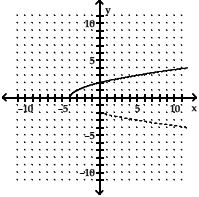
157) _____

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

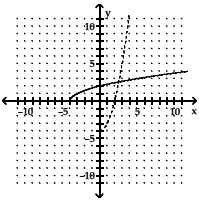
158)



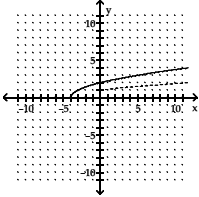
A)



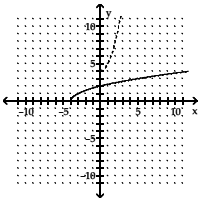
C)



B)



D)



158) _____

25

Evaluate the integral.

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

A) $\frac{10}{3} \csc^3 \left(8 - \frac{x}{10} \right) + C$
C) $10 \tanh \left(8 - \frac{x}{10} \right) + C$

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

159) _____

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

A) $4 \left(e - \frac{1}{e} \right)$
C) $8(e^{\pi/2} - e^{-\pi/2} - 1)$

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

160) _____

Find the derivative of y with respect to x.

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

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) $\frac{5}{\sqrt{1 + (5x^2 + 4)^2}}$

161) _____

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

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

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

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

162) _____

Evaluate the integral.

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

A) $\frac{\pi}{8}$

B) $\frac{\pi}{4}$

C) $\frac{\pi}{2}$

D) π

163) _____

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

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

A) Domain: $[-4, \infty)$; range: all real numbers
C) Domain: $[0, \infty)$; range: $[0, \infty)$

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

164) _____

Evaluate the integral.

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

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

B) $e^{\pi/4} - e^{\pi/2}$

C) $e^{\pi/4}$

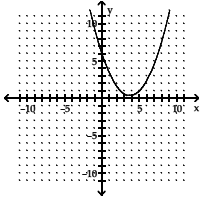
D) 1

165) _____

26

Is the function graphed below one-to-one?

166)



A) No

B) Yes

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

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

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

B) -4t

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

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

166) _____

167) _____

Evaluate the integral.

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

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) $\frac{2}{3} \ln \left| \frac{3}{2} \right|$

168) _____

Solve the equation for x.

169) $5 \log_5(x^2) = 12 \ln x - 7 \log_{10}(5)$

A) -7 or -5

B) 7 or 5

C) 12

D) No real solution

169) _____

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

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

A) $2x \ln 2x + x$

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

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

D) $x^2 \ln 2x$

170) _____

Solve for y or k, as appropriate.

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

A) $7xe^x + 6$

B) $e^x + 7x + 6$

C) $2x + 13$

D) $(x + 7)e^x + 6$

171) _____

Simplify the expression.

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

A) $x + y$

B) xy

C) $\ln x + \ln y$

D) $e^x e^y$

172) _____

27

Evaluate the integral.

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

A) $5 \ln \left(\cosh \frac{x}{5} \right) + C$
C) $\ln \left(\coth \frac{x}{5} \right) + C$

B) $5 \operatorname{sech} 2 \frac{x}{5} + C$
D) $5 \ln \left(\sinh \frac{x}{5} \right) + C$

173) _____

Solve the initial value problem.

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

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

B) $y = \sin e^t - \sin 2$

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

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

174) _____

Find the derivative of y.

175) $y = \cosh x^7$

A) $7x^6 \sinh x^7$

B) $-\sinh x^7$

C) $\sinh x^7$

D) $-7x^6 \sinh x^7$

175) _____

Use logarithmic differentiation to find the derivative of y.

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

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

176) _____

Find the derivative of y with respect to x.

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

A) $\frac{25}{36x^2 + 25}$

B) $\frac{6}{\sqrt{25 - 36x^2}}$

C) $\frac{-30}{36x^2 + 25}$

D) $\frac{30}{36x^2 + 25}$

177) _____

Solve the initial value problem.

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

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) $y = 3 \cos^{-1} x - 2$

178) _____

Rewrite the following without using trigonometric or inverse trigonometric functions.

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

A) $\frac{u\sqrt{u^2 + 3}}{u^2 + 3}$

B) $u\sqrt{3}$

C) $\frac{\sqrt{u^2 + 3}}{u^2 + 3}$

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

179) _____

28

Evaluate the integral.

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

- 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.

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

- 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.

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

- 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.

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

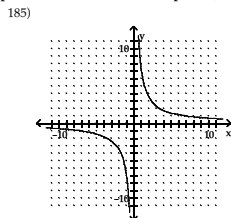
- A) No B) Yes

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

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

- 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.



180) _____

181) _____

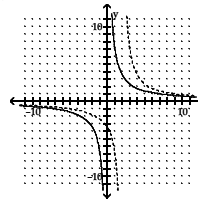
182) _____

183) _____

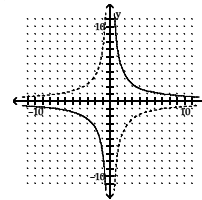
184) _____

185) _____

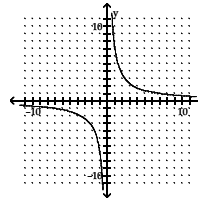
A)



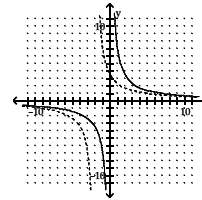
B)



C)



D)



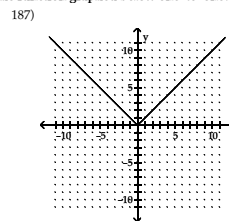
Function is its own inverse.

Evaluate the integral.

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

- 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?



- A) No B) Yes

187) _____

186) _____

187) _____

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

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

$$y = e^x$$

$$y = e^{x-5}$$

$$y = xe^x$$

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.

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

A) $e^{\theta} \left(\frac{1}{\theta} + 1 \right)$

B) $\ln(10e^{-\theta}(1-\theta))$

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

D) $\frac{1}{106e^{\theta}}$

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

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

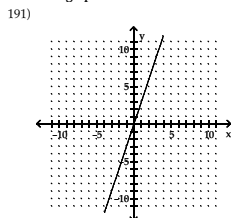
A) $\frac{-8 \sin(8x + y)}{4e^{4y} + \sin(8x + y)}$

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?



- A) No B) Yes

Solve for y or k, as appropriate.

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

A) $\frac{e^{36}}{2}$

B) $\ln 6$

C) $\ln 36$

D) $\ln 18$

188) _____

189) _____

190) _____

191) _____

192) _____

Evaluate the integral in terms of natural logarithms.

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

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.

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

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.

$$195) \lim_{x \rightarrow \pi} \sec^{-1} x$$

A) ∞

B) 0

C) $\frac{\pi}{2}$

D) $-\frac{\pi}{2}$

Evaluate the integral.

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

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.

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

A) $8xe^x + 16e^x$

B) $8xe^x$

C) $8x$

D) $8e^x$

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

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.

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

A) $-\frac{\pi}{4}$

B) $\frac{\sqrt{2}}{2} - \frac{\pi}{5}$

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

D) $-\frac{5\pi}{6}$

193) _____

194) _____

195) _____

196) _____

197) _____

198) _____

199) _____

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

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

- 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) $\log_{10} 10$

- A) 0
 B) 1
 C) -1
 D) 10

Evaluate the integral.

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

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

- 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 $x=\frac{3}{5}$.

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

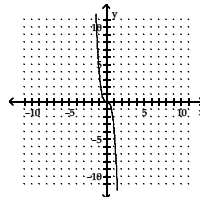
Solve the equation for x.

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

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

Is the function graphed below one-to-one?

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 $x = \ln 4$.

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

Evaluate the integral.

208) $\int (e^{2x} - e^{-2x}) \, dx$

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

Evaluate the integral in terms of natural logarithms.

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

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

Evaluate the integral.

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

- 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) $-6t + C$

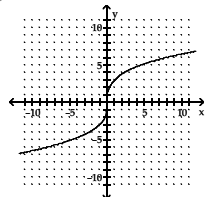
Answer the question appropriately.

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

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

Is the function graphed below one-to-one?

212)



- A) No
 B) Yes

Simplify the expression.

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

- 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.

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

Evaluate the integral.

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

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

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

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

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.

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

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

Evaluate the integral.

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

- 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) $\int \frac{e^{1/x}}{4x^2} \, dx$

- 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) $\ln(e^{10}x)$

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

Evaluate the integral.

222) $\int_1^2 9x^2 2x^3 \, dx$

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

Solve the initial value problem.

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

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

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

Simplify the expression.

225) $7 \log_7 (9x)$

A) 1

B) $9x$

C) 7^9x

D) 7

225) _____

Determine whether the integration formula is correct.

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

A) No

B) Yes

226) _____

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

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

A) Domain: $[7, \infty)$; range: $[0, \infty)$

B) Domain and range: all real numbers

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

D) Domain: $[4, \infty)$; range: $[0, \infty)$

227) _____

Solve the initial value problem.

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

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

228) _____

Determine whether the integration formula is correct.

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

A) No

B) Yes

229) _____

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

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

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) $\frac{xe^x + 8}{x \cot y}$

230) _____

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.

A) $2\pi \ln 5$

B) $\pi \ln 5 - \pi$

C) $4\pi \ln 5$

D) $2\pi \ln 5 - \pi$

231) _____

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

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

A) $\frac{6+3}{\cos y}$

B) $6+3 - \cos y$

C) $\frac{1}{\sin y - 3}$

D) $\frac{6}{\cos y - 3}$

232) _____

Find the derivative of y.

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

A) $\frac{1}{\sinh 2x}$

B) $2 \coth 2x$

C) $\coth 2x$

D) $2 \cosh 2x$

233) _____

Answer the question appropriately.

234) Find the area of the region between the curve $y = 2^2 - x$ and the interval $0 \leq x \leq 2$ on the x-axis.

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

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

C) $3 \ln 2$

D) 4

234) _____

Use logarithmic differentiation to find the derivative of y.

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

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) $\cos x \sqrt{3x+8} \left(\tan x + \frac{3}{2(3x+8)} \right)$

235) _____

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

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

A) $\frac{1}{(x-2)^2}$

B) $\frac{-4}{(x+2)(x-2)}$

C) $\frac{-2}{x+2}$

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

236) _____

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

A) $\frac{5}{4}$

B) $\frac{5}{3}$

C) $\frac{4}{5}$

D) $-\frac{4}{5}$

237) _____

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

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

A) $\frac{1}{x}$

B) $\frac{1}{x \ln 2x}$

C) $\frac{1}{\ln 2x}$

D) $\frac{1}{2x}$

238) _____

Simplify the expression.

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

A) $|x-16|$

B) $\log_e 16$

C) $\log |x-16|$

D) $16 \log_e e$

239) _____

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

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

A) 0

B) $7x$

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

D) $7 \left(x + \frac{1}{x} \right)$

240) _____

Evaluate the integral.

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

A) $\frac{1}{7} \ln 2$

B) $\frac{9}{56}$

C) $\frac{1}{7} \ln \frac{5}{2}$

D) $\ln \frac{5}{2}$

241) _____

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

A) $\frac{5-e}{\ln 7}$

B) $\frac{5}{7 \ln x} + C$

C) $\frac{35}{\ln 6}$

D) 35

242) _____

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

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

A) $\frac{-1}{3x^{2/3}}$

B) $-3(8-x)^2$

C) $8-x^{1/3}$

D) $x^{2/3}$

243) _____

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

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

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

B) $\frac{2x}{x^2+5}$

C) $\frac{1}{2x+5}$

D) $\frac{10}{x}$

244) _____

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

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

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

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

C) $\ln \sin(x+6y)$

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

245) _____

Solve the initial value problem.

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

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

246) _____

Rewrite the following without using trigonometric or inverse trigonometric functions.

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

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) $\frac{u\sqrt{u^2-1}}{u^2-1}$

247) _____

Solve the initial value problem.

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

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

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

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

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

248) _____

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?

A) 253 years

B) 350 years

C) 363 years

D) 700 years

249) _____

Solve the initial value problem.

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

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

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

C) $y = t^2 - e^{-t}$

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

250) _____

Evaluate the integral.

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

A) $2e$

B) $-\frac{e}{2}$

C) $\frac{e}{2}$

D) e

251) _____

Solve the initial value problem.

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

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

252) _____

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

253) $y = \ln 7x$

A) $\frac{1}{7x}$

B) $-\frac{1}{7x}$

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

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

253) _____

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

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

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) $\frac{9}{x\sqrt{(\ln x)^2 - 1}}$

254) _____

Find the derivative of y.

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

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

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

255) _____

Answer the question appropriately.

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

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

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

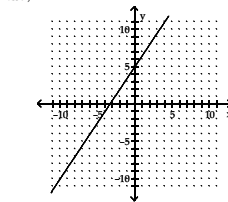
Evaluate the integral.

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

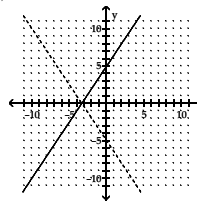
- A) $-7 \ln 3$ B) $14 \ln 3$ C) $-14 \ln 3$ D) $7 \ln 3$

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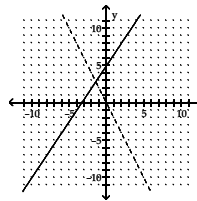
Graph the inverse of the function plotted, on the same set of axes. Use a dashed curve for the inverse.



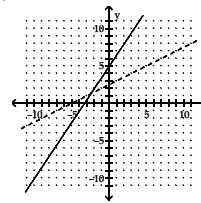
A)



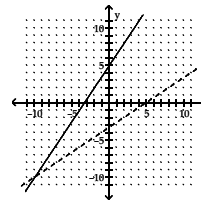
C)



B)



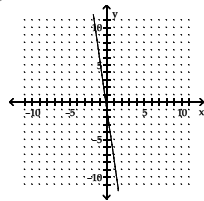
D)



42

Is the function graphed below one-to-one?

260)



- A) Yes B) No

Evaluate the integral.

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

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

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

- 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 $[4, 5]$

- 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 $(5, \sin(\ln 5))$

Find the angle.

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

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

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

43

Find the inverse of the function.

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

- 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) $e^{xy} = \sin x$

- 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 $x = 1$.

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

Evaluate the integral.

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

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

Evaluate the integral in terms of natural logarithms.

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

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

- A) $10(e^{\pi/4} - e^{-\pi/4})$ B) 0
C) 10 D) $10\left(e - \frac{1}{e}\right)$

44

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

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

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

303) $f(x) = 243x^3$
 A) $\frac{1}{15x^{4/5}}$ B) $1215x^4$ C) $15x^4$ D) $\frac{x^{1/5}}{3}$

Evaluate the integral.

304) $\int x^6 e^{-x^7} dx$
 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) $\tan\left(\cos^{-1}\frac{u}{5}\right)$
 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) $y = (\cos \theta)\sqrt{11}$
 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) $\int \frac{\sec x \tan x}{4 + \sec x} dx$
 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) $\csc(\tan^{-1} 1 + \csc^{-1} 1)$
 A) $\frac{\sqrt{2}}{2}$ B) 0 C) $\sqrt{2}$ D) $-\sqrt{2}$

Find the inverse of the function.

309) $f(x) = 2x - 5$
 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) $\cosh 3x - \sinh 3x$
 A) $2e^{-3x}$ B) $-3x$ C) e^{-3x} D) $e^{3x} - e^{-3x}$

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Find the inverse of the function.

311) $f(x) = \sqrt{x-7}, x \geq 0$
 A) $f^{-1}(x) = x + 7, x \geq 7$ B) $f^{-1}(x) = (x+7)^2, x \geq 7$
 C) $f^{-1}(x) = -(x+7)^2, x \geq 7$ D) $f^{-1}(x) = (x-7)^2$

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

312) $\frac{1}{2} \ln(4t^6) - \ln 2$
 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) $y = 3e^{\theta}(\sin \theta - \cos \theta)$
 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) $\int 7 \cosh\left(\frac{x}{2} - \ln 5\right) dx$
 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 $[\pi/6, 3\pi/4]$
 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 $x \rightarrow \infty$.

316) $y = 2x^2 + 9x$
 $y = e^x$
 $y = e^x/6$
 $y = \log_7 x$
 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: $y = e^x$

50

Evaluate the integral.

317) $\int_{-\ln 3}^0 9 \sinh^2\left(\frac{x}{2}\right) dx$
 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) $\frac{\log_2 x}{\log_8 x}$
 A) $\ln 3$ B) 3 C) $\frac{1}{22}$ D) 2^2

Find the derivative of y .

319) $y = \operatorname{sech}(2\theta)(1 - \ln \operatorname{sech}(2\theta))$
 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) $\sin\left(\tan^{-1}\frac{u}{\sqrt{3}}\right)$
 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.

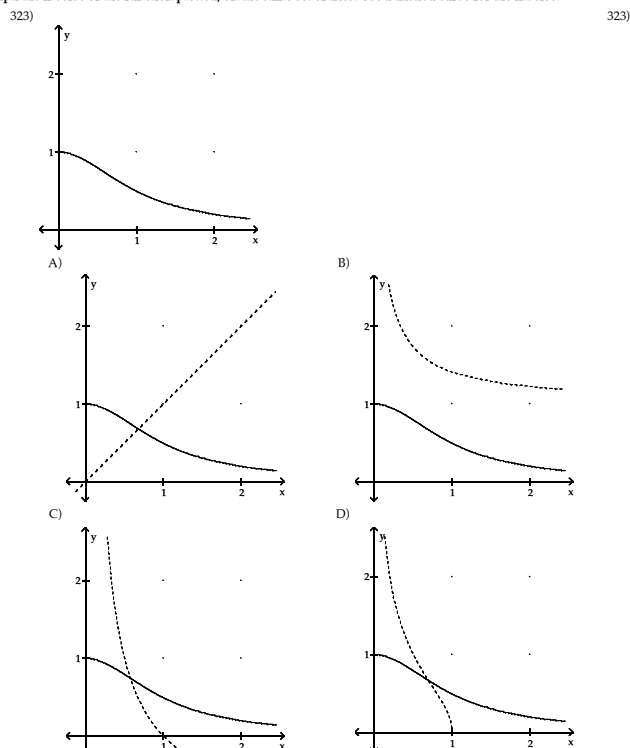
321) Find the length of the curve $x = \frac{y^2}{32} - 4 \ln\left(\frac{y}{3}\right), 8 \leq y \leq 16$.
 A) $8 + 4 \ln 2$ B) $8 + 4 \ln \frac{2}{3}$ C) $6 + 4 \ln 2$ D) $6 + 4 \ln \frac{2}{3}$

Evaluate the integral.

322) $\int_{\pi/8}^{\pi/4} 2 \cot(2\theta) d\theta$
 A) $-\frac{\ln 2}{2}$ B) $\frac{\ln 4}{2}$ C) $\frac{\ln 2}{2}$ D) $\ln 2$

51

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



52

Find the limit.

$$324) \lim_{x \rightarrow 0} \frac{\sin^{-1} 4x}{x}$$

A) 4

B) 1

C) $\frac{1}{4}$

D) ∞

324) _____

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

$$325) \operatorname{csch}^{-1} \left(\frac{9}{4} \right)$$

A) $\ln \sqrt{97}$

B) $\ln \left(\frac{4 + \sqrt{97}}{9} \right)$

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

D) $\ln \left(\frac{4 - \sqrt{97}}{9} \right)$

325) _____

Evaluate the integral.

$$326) \int_{\ln 2}^{\ln 9} \tanh x \, dx$$

A) $\ln 2$

B) $\frac{119}{18}$

C) $\ln \frac{164}{45}$

D) $\ln \frac{119}{18}$

326) _____

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

$$327) y = 7 \cos \pi \theta$$

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) $\pi 7 \cos \pi \theta \ln 7$

327) _____

Find the inverse of the function.

$$328) f(x) = x^3 + 7$$

A) $f^{-1}(x) = \sqrt[3]{x} - 7$

B) Not a one-to-one function

C) $f^{-1}(x) = \sqrt[3]{x+7}$

D) $f^{-1}(x) = \sqrt[3]{x-7}$

328) _____

Evaluate the integral in terms of natural logarithms.

$$329) \int_4^8 \frac{dx}{\sqrt{x^2 - 9}}$$

A) $\ln \left(\frac{8 + \sqrt{55}}{16} \right) - 1$

B) $\ln \left(\frac{8 + \sqrt{55}}{4} \right)$

C) $\ln 5$

D) $\frac{1}{2} \ln \left(\frac{\sqrt{55}}{4} \right)$

329) _____

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

$$330) f(x) = \frac{8}{x^2 + 1}, x \geq 0$$

A) Domain: (0, 8]; range: [0, ∞)

B) Domain and range: [0, ∞)

C) Domain: [0, ∞); range: (0, 8]

D) Domain: $(-\infty, 0]$; range: [-8, 0]

330) _____

Find the angle.

$$331) \sin^{-1} 0$$

A) 0

B) $-\frac{\pi}{2}$

C) $\frac{\pi}{2}$

D) π

331) _____

53

Evaluate exactly.

$$332) \cos^{-1} \left(\cos \left(-\frac{\pi}{3} \right) \right)$$

A) $\frac{4\pi}{3}$

B) $-\frac{3}{\pi}$

C) $\frac{\pi}{3}$

D) $-\frac{\pi}{3}$

332) _____

Determine whether the integration formula is correct.

$$333) \int \frac{1}{x} + \frac{6}{5} \cot^{-1} \frac{3}{5} x \, dx = \ln x + \ln (25 + 9x^2) - \frac{6}{5} x \cot^{-1} \frac{3}{5} x + C$$

A) No

B) Yes

333) _____

Evaluate the integral.

$$334) \int_1^7 \frac{4 \ln x}{x} \, dx$$

A) $\frac{4 \ln 7 - 1}{\ln 4}$

B) $\frac{27}{\ln 4}$

C) $\frac{4 \ln 7}{\ln 4}$

D) $\frac{16,380}{\ln 4}$

334) _____

Solve for y or k, as appropriate.

$$335) \ln (1 - 10y) = x$$

A) $\frac{1 - e^x}{10}$

B) $\frac{e^x - 1}{10}$

C) $\frac{1 - \ln x}{10}$

D) $e^x + 9$

335) _____

Answer the question appropriately.

$$336) \text{ Find the linearization of } f(x) = \log_5 x \text{ at } x = 5. \text{ Round the coefficients to 2 decimal places.}$$

A) $L(x) = 0.32x - 0.61$

B) $L(x) = 0.12x + 0.38$

C) $L(x) = 0.12x + 1$

D) $L(x) = x - 5$

336) _____

Find the inverse of the function.

$$337) f(x) = \sqrt{x - 9}, x \geq 9$$

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) $f^{-1}(x) = x + 9, x \geq 0$

337) _____

Solve for y or k, as appropriate.

$$338) \ln y = 4x + 3$$

A) e^{4x+3}

B) $4x$

C) 7

D) $\ln(4x + 3)$

338) _____

Determine whether the integration formula is correct.

$$339) \int 36x \cos^{-1} 6x \, dx = \frac{72x^2 - 1}{4} \cos^{-1} 6x - \frac{6x\sqrt{1 - 36x^2}}{4} + C$$

A) Yes

B) No

339) _____

Find the limit.

$$340) \lim_{x \rightarrow -\infty} \csc^{-1} x$$

A) 0

B) $-\infty$

C) $-\frac{\pi}{2}$

D) $\frac{\pi}{2}$

340) _____

54

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

$$341) \cosh 5x + \sinh 5x$$

A) e^{5x}

B) $5x$

C) $2e^{5x}$

D) $e^{5x} - e^{-5x}$

341) _____

Answer the question appropriately.

$$342) \text{ Where does the periodic function } f(x) = 4e^{\sin(x/2)} \text{ take on its extreme values?}$$

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

342) _____

Evaluate the integral.

$$343) \int \frac{12e\sqrt{3x}}{2\sqrt{x}} \, dx$$

A) $6e\sqrt{3x} + C$

B) $12e\sqrt{3x} + C$

C) $\sqrt{3}e\sqrt{3x} + C$

D) $4\sqrt{3}e\sqrt{3x} + C$

343) _____

Solve the problem.

$$344) \text{ By what factor k do you have to multiply the intensity of I of the sound from your audio amplifier to add 8 db to the sound level?}$$

A) $k = 6.3$

B) $k = 9$

C) $k = 2.2$

D) $k = 0.9$

344) _____

Evaluate the integral.

$$345) \int \sinh 10x \, dx$$

A) $\cosh^{-1} 10x + C$

B) $\cosh 10x + C$

C) $-\frac{1}{10} \cosh 10x + C$

D) $\frac{1}{10} \cosh 10x + C$

345) _____

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

$$346) y = \sin e^{-\theta^7}$$

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) $7\theta^6 \cos e^{-\theta^7}$

346) _____

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

$$347) y = \ln 2x$$

A) $y = 8 \ln x$

B) $y = \frac{1}{x}$

C) $y = \sqrt{x}$

D) 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: $y = \sqrt{x}$

347) _____

Evaluate the integral.

$$348) \int \frac{dx}{2\sqrt{x}(1+x)}$$

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

B) $\frac{1}{2} \ln |x| + C$

C) $\tan^{-1} \sqrt{x} + C$

D) $\frac{1}{2} \tan^{-1} \sqrt{x} + C$

348) _____

$$349) \int_0^{7\pi/4} \tan \frac{x}{7} \, dx$$

A) $-\frac{7 \ln 2}{2}$

B) $-\frac{7\sqrt{2}}{2}$

C) $\frac{7\sqrt{2}}{2}$

D) $\frac{7 \ln 2}{2}$

349) _____

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

$$350) \cosh^{-1} \left(\frac{13}{5} \right)$$

A) $\ln \left(\frac{13}{5} + \sqrt{170} \right)$

B) $\ln 4$

C) $\ln 5$

D) $\ln \frac{1}{5}$

350) _____

Simplify the expression.

$$351) 4^{\log_4 8}$$

A) 32

B) $\log_4 8$

C) 8

D) 4

351) _____

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

$$352) y = e^{\sin t} (\ln t^3 + 10)$$

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) $\frac{3e^{\sin t} \cos t}{t}$

352) _____

55

56

Solve for y or k, as appropriate.

353) $100e^{5k} = 700$

A) $\ln\left(\frac{7}{5}\right)$

B) $\frac{e^7}{5}$

C) $\frac{\ln 600}{5}$

D) $\frac{\ln 7}{5}$

353) _____

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

354) $\operatorname{sech}^{-1}\left(\frac{12}{13}\right)$

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

B) Undefined

C) $\ln \frac{18}{13}$

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

354) _____

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

355) $y = 5t\sqrt{t}$

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) $\frac{1}{\sqrt{t}}\left(\frac{1}{2}\ln 5t-1\right)$

355) _____

Solve for y or k, as appropriate.

356) $\ln(y-39) = 4x$

A) $\ln(4x) + 39$

B) $\frac{4x+39}{e}$

C) $4x + 39$

D) $e^{4x} + 39$

356) _____

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

357) $\ln(72x+36) - 2\ln 6$

A) $\ln(6x+2)$

B) $\ln(1296(2x+1))$

C) $\ln(72x)$

D) $\ln(2x+1)$

357) _____

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

358) $y = (6-6\theta)\tanh^{-1}\theta$

A) $\frac{6}{1-\theta} - 6\tanh^{-1}\theta$

B) $\frac{-6}{1+\theta}$

C) $\frac{6+6\theta}{1+\theta^2} - 6\tanh^{-1}\theta$

D) $\frac{6}{1+\theta} - 6\tanh^{-1}\theta$

358) _____

Find the derivative of y with respect to x.

359) $y = \sin^{-1}(e^{5t})$

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) $\frac{5e^{5t}}{\sqrt{1-e^{10t}}}$

359) _____

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

360) $\sinh^{-1}(8)$

A) $\ln(8-\sqrt{65})$

B) $\ln(8+\sqrt{65})$

C) $\ln 16$

D) $\ln(8+\sqrt{63})$

360) _____

Find the derivative of y with respect to x.

361) $y = 4x^4 \sin^{-1}x$

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) $\frac{1}{\sqrt{1-x^2}} + 16x^3$

361) _____

Evaluate the integral in terms of natural logarithms.

362) $\int_0^{5\sqrt{3}} \frac{dx}{\sqrt{25+x^2}}$

A) $\ln(\sqrt{2}+\sqrt{5})$

B) $\ln(\sqrt{3}+2)$

C) $\ln\left(\frac{\sqrt{3}+2}{5}\right)$

D) $\ln(\sqrt{2}+3)$

362) _____

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) $\cosh x = \frac{5}{3}$, $x > 0$, $\sinh x =$

A) $-\frac{4}{3}$

B) $\frac{3}{5}$

C) $\frac{16}{9}$

D) $\frac{4}{3}$

363) _____

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

364) $y = (\sin x)^{\cos x}$

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) $\cos x \cot x - \sin x \ln(\sin x)$

364) _____

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

365) $y = \ln \frac{1+\sqrt{x}}{x^2}$

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) $\frac{-4-3\sqrt{x}}{2x(1+\sqrt{x})}$

365) _____

Evaluate the integral.

366) $\int_{\ln 4}^{\ln 3} e^x dx$

A) 7

B) -1

C) 1

D) 6

366) _____

Solve the initial value problem.

367) $\frac{dy}{dx} = \frac{-4}{\sqrt{1-x^2}}$, $y(1) = -5$

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) $y = -4 \sin^{-1}x - 5$

367) _____

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

368) $y = \int_{e^{4\sqrt{x}}}^{e^{8x}} \ln t dt$

A) $64e^{8x} - 4\sqrt{x}e^{4\sqrt{x}}$

B) $64xe^{8x} - 8e^{4\sqrt{x}}$

C) $\ln t$

D) $e^{8x}(8x-1) - e^{4\sqrt{x}}(4\sqrt{x}-1)$

368) _____

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

369) $16 \cosh(\ln x) + 4 \sinh(\ln x)$

A) 0

B) $10\left(x + \frac{1}{x}\right)$

C) $10x$

D) $10x + \frac{6}{x}$

369) _____

Solve the problem.

370) The barometric pressure p at an altitude of h miles above sea level satisfies the differential equation $\frac{dp}{dh} = -0.2p$. If the pressure at sea level is 29.92 inches of mercury, find the barometric pressure at 17,000 ft.

A) 56.97 in.

B) 15.71 in.

C) 1 in.

D) 7.86 in.

370) _____

371) Find the area bounded by the x-axis, the curve $y = \frac{1}{x+2}$, $x = 0$, $y = 0$, and $x = 4$.

A) $2 \ln(6)$

B) $\ln(6)$

C) $\ln(3)$

D) $\frac{1}{2} \ln(3)$

371) _____

Find the angle.

372) $\tan^{-1} -1$

A) $\frac{3\pi}{4}$

B) $\frac{-\pi}{4}$

C) 0

D) 1

372) _____

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

373) $\ln(5x^2 - 15x) + \ln\left(\frac{1}{5x}\right)$

A) $\ln\left(5x^2 - 15x + \frac{1}{5x}\right)$

B) $\ln(x-15)$

C) $\ln(x-3)$

D) $\ln(25x^2(x-3))$

373) _____

Evaluate the integral.

374) $\int \frac{\cos x dx}{1+2 \sin x}$

A) $2 \sin x + C$

B) $\frac{1}{2} \ln|1+2 \sin x| + C$

C) $\ln|1+2 \sin x| + C$

D) $2 \ln|1+2 \sin x| + C$

374) _____

375) $\int_1^9 6 \frac{\sinh \sqrt{x}}{\sqrt{x}} dx$

A) -6

B) $6(e^3 - e)$

C) $12\left(e^3 + e^{-3}e - \frac{1}{e}\right)$

D) $6\left(e^3 + e^{-3}e - \frac{1}{e}\right)$

375) _____

Use logarithmic differentiation to find the derivative of y.

376) $y = \sqrt{\frac{x}{x+6}}$

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) $\left(\frac{1}{2}\right)(\ln x - \ln(x+6))$

376) _____

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) $\sinh x = -\frac{3}{4}$, $\coth x =$

A) $-\frac{3}{5}$

B) $\frac{5}{4}$

C) $\frac{5}{16}$

D) $-\frac{5}{3}$

377) _____

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 $y = 9/\sqrt{4+x^2}$.

A) $81\pi^2$

B) $\frac{9}{4}\pi^2$

C) $\frac{81}{4}\pi^2$

D) 81π

378) _____

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

379) $y = (x^2 - 2x + 5)e^x$

A) $(x^2 + 4x + 3)e^x$

B) $(x^2 + 3)e^x$

C) $(2x - 2)e^x$

D) $\left(\frac{x^3}{3} + 3x + 5\right)e^x$

379) _____

Evaluate exactly.

380) $\tan(\sec^{-1}1) + \cos(\tan^{-1}(-\sqrt{3}))$

A) $-\frac{1}{2}$

B) $-\frac{\sqrt{3}}{2}$

C) $\frac{1}{2}$

D) Undefined

380) _____

381) $\sec\left(\tan^{-1}\left(\frac{4}{3}\right)\right)$

A) $\frac{5}{3}$

B) $-\frac{5}{3}$

C) $\frac{1}{3}$

D) $\frac{5}{4}$

381) _____

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) $\ln 2x^2$

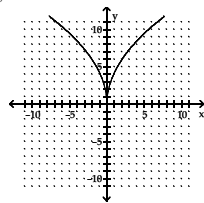
B) $\ln x$

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)



A) No

B) Yes

383) _____

Answer the question appropriately.

384) Find the linearization of $f(x) = \sin x$ at $x = 2$. Round the coefficients to 2 decimal places.

A) $L(x) = \cos x$

B) $L(x) = 0.42x + 0.49$

C) $L(x) = -0.42x + 0.07$

D) $L(x) = -0.42x + 1.74$

384) _____

Solve the initial value problem.

385) $\frac{dy}{dx} = \frac{5}{x\sqrt{x^2 - 1}}$, $x > 1$, $y(2) = 5\pi$

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) $y = 5 \sec^{-1} x$

385) _____

Find the angle.

386) $\sin^{-1} \frac{\sqrt{3}}{2}$

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

B) $\frac{3\pi}{4}$

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

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

386) _____

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

387) $y = e^x$

$y = e^{x/6}$

$y = x^x$

$y = 7^x$

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: $y = 7^x$

387) _____

Evaluate exactly.

388) $\cos \left(\sin^{-1} \left(\frac{12}{13} \right) \right)$

A) $-\frac{5}{13}$

B) $-\frac{12}{13}$

C) $\frac{12}{5}$

D) $\frac{5}{13}$

388) _____

Find the inverse of the function.

389) $f(x) = 7x^3 + 6$

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) $f^{-1}(x) = \sqrt[3]{\frac{x-6}{7}}$

389) _____

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

390) $\ln 6xy = e^{x+y}$

A) $\frac{y}{x}$

B) $\frac{2xye^{x+y}}{x+y}$

C) $\frac{e^{x+y}}{e^6x}$

D) $\frac{xye^{x+y} - y}{x - xye^{x+y}}$

390) _____

Evaluate the integral.

391) $\int \cosh \frac{x}{4} dx$

A) $-4 \sinh \frac{x}{4} + C$

B) $\sinh \frac{x}{4} + C$

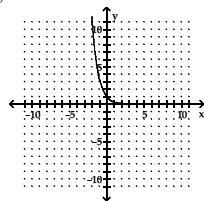
C) $\sin^{-1} \frac{x}{4} + C$

D) $4 \sinh \frac{x}{4} + C$

391) _____

Is the function graphed below one-to-one?

392)



A) No

B) Yes

392) _____

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

393) $\ln (\cosh 10x - \sinh 10x)$

A) $\ln (e^{10x} - e^{-10x})$

B) -10

C) $-10x$

D) $-20x$

393) _____

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

394) $y = 2\sqrt{t}$

A) $\frac{1}{2\sqrt{t}}$

B) $\frac{\ln 2}{2\sqrt{t}}$

C) $2\sqrt{t} \ln 2$

D) $\frac{\ln 2\sqrt{t}}{2\sqrt{t}}$

394) _____

Determine whether the integration formula is correct.

395) $\int 6 \cosh 6x dx = \ln | \tanh 3x | + C$

A) No

B) Yes

395) _____

Simplify the expression.

396) $\ln (e^9 \ln x)$

A) $\ln 9$

B) $\ln x^9$

C) 9

D) x^9

396) _____

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

397) $y = \log_4 \left(\frac{\sin \theta \cos \theta}{e^{95\theta}} \right)$

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) $e^4 (\cos \theta - \sin \theta - e^{95\theta})$

D) $\frac{1}{\ln 4} \left(\frac{e^{195\theta}}{\sin \theta \cos \theta} \right)$

397) _____

Find the inverse of the function.

398) $f(x) = \sqrt{x+9}$, $x \geq -9$

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) $f^{-1}(x) = -x^2 + 9$, $x \geq 0$

398) _____

Evaluate the integral.

399) $\int \frac{dt}{5(\tan^{-1} t)(1+t^2)}$

A) $5 \cot^{-1} t + C$

B) $\frac{1}{5(\tan^{-1} t)^2} + C$

C) $\ln |5 \tan^{-1} t| + C$

D) $\frac{1}{5} \ln | \tan^{-1} t | + C$

399) _____

Simplify the expression.

400) $e^{-\ln x^6}$

A) $\frac{1}{x^6}$

B) 6

C) $\frac{1}{e^{x^6}}$

D) x^6

400) _____

Evaluate the integral.

401) $\int \frac{dx}{(x+5)\sqrt{x^2+10x+24}}$

A) $\frac{\sec^{-1}(x+5)}{5} + C$

B) $\csc^{-1}(x+5) + C$

C) $\frac{\sin^{-1}(x+5)}{5} + C$

D) $\sec^{-1}(x+5) + C$

401) _____

Find the limit.

402) $\lim_{x \rightarrow -1^+} \sin^{-1} x$

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

B) 1

C) -1

D) $-\frac{\pi}{2}$

402) _____

Find the angle.

403) $\sec^{-1} \sqrt{2}$

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) $\frac{7\pi}{4}$

403) _____

Rewrite the following without using trigonometric or inverse trigonometric functions.

404) $\tan \left(\sec^{-1} \frac{\sqrt{u^2+9}}{u} \right)$

A) $\frac{\sqrt{u^2+3}}{u^2+3}$

B) $3u$

C) $\frac{u\sqrt{u^2+9}}{u^2+9}$

D) $\frac{3}{u}$

404) _____

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

405) $y = x^4 \ln x - \frac{1}{3}x^3$

A) $4x^3 - x^2$

B) $x^4 \ln x - x^2 + 4x^3$

C) $x^3 - x^2 + 4x^3 \ln x$

D) $5x^3 - x^2$

405) _____

Find the derivative of y with respect to x.

406) $y = \tan^{-1} (\ln 2x)$

A) $\frac{2}{x(1+\ln^2 2x)}$

B) $\frac{1}{x(1+\ln^2 2x)}$

C) $\frac{1}{1+\ln^2 2x}$

D) $\frac{1}{x\sqrt{1+\ln^2 2x}}$

406) _____

Solve the initial value problem.

$$407) \frac{dy}{dx} = \frac{4}{x\sqrt{x^2-1}} + x^2, \quad x > 1, \quad y(2) = 2\pi$$

$$A) y = 4 \sec^{-1} x + 2x - \frac{10}{3}\pi$$

$$B) y = 4 \csc^{-1} x + \frac{x^3}{3} - 1\pi$$

$$C) y = 4 \sec^{-1} x + \frac{x^3}{3} - 2\pi$$

$$D) y = 4 \sin^{-1} x + \frac{x^3}{3}$$

Solve the problem.

$$408) \text{ Find the area bounded by } y = \frac{2}{\sqrt{81-4x^2}}, \quad x = 0, y = 0, \text{ and } x = 3.$$

$$A) \frac{2}{9} \tan^{-1}\left(\frac{1}{3}\right)$$

$$B) \sin^{-1}\left(\frac{2}{3}\right)$$

$$C) \frac{1}{9} \tan^{-1}\left(\frac{2}{3}\right)$$

$$D) \frac{1}{9} \sin^{-1}\left(\frac{2}{3}\right)$$

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

$$409) y = \ln\left(\frac{e^\theta}{2+e^\theta}\right)$$

$$A) \frac{2+2e^\theta}{2+e^\theta}$$

$$B) \ln\left(\frac{2}{2+e^\theta}\right)$$

$$C) \frac{2+e^\theta}{e^\theta}$$

$$D) \frac{2}{2+e^\theta}$$

Evaluate the integral.

$$410) \int \frac{e^{2\theta}}{1+e^{2\theta}} d\theta$$

$$A) \frac{\ln(1+2e^\theta)}{2} + C$$

$$B) \ln(1+e^{2\theta}) + C$$

$$C) \frac{\ln(1+e^{2\theta})}{2} + C$$

$$D) 2 \ln(1+e^{2\theta}) + C$$

$$411) \int \frac{dx}{x(4+8 \ln x)}$$

$$A) \frac{1}{8} \ln|4+8 \ln x| + C$$

$$B) \frac{1}{8} \ln|8+4 \ln x| + C$$

$$C) \frac{1}{2} \ln|4+8 \ln x| + C$$

$$D) \frac{1}{4} \ln|4+8 \ln x| + C$$

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

$$412) \frac{\log_8 1 x}{\log_3 x}$$

$$A) 3^3$$

$$B) \frac{1}{3^3}$$

$$C) \ln 4$$

$$D) \frac{1}{4}$$

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.

$$413) \sinh x = \frac{12}{5}, \quad \cosh x =$$

$$A) \frac{13}{5}$$

$$B) \frac{5}{12}$$

$$C) \frac{169}{25}$$

$$D) -\frac{5}{12}$$

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

$$414) y = (x+4) \sin x$$

$$A) \sin x \ln(x+4)$$

$$B) \left(\frac{-\cos x}{x+4}\right)(x+4) \sin x$$

$$C) \cos x \ln(x+4) + \frac{\sin x}{x+4}$$

$$D) (x+4) \sin x \left(\cos x \ln(x+4) + \frac{\sin x}{x+4} \right)$$

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

$$415) f(x) = \sqrt{x-6}$$

$$A) \text{ Domain and range: all real numbers}$$

$$B) \text{ Domain: } [6, \infty); \text{ range: } [6, \infty)$$

$$C) \text{ Domain: } [0, \infty); \text{ range: } [6, \infty)$$

$$D) \text{ Domain: } [6, \infty); \text{ range: } [0, \infty)$$

Solve the problem.

$$416) \text{ Suppose that the amount of oil pumped from a well decreases at the continuous rate of 15\% per year. When, to the nearest year, will the well's output fall to one-eighth of its present value?}$$

$$A) 21 \text{ years}$$

$$B) 14 \text{ years}$$

$$C) 2 \text{ years}$$

$$D) 9 \text{ years}$$

$$417) \text{ In a chemical reaction, the rate at which the amount of a reactant changes with time is proportional to the amount present, such that } \frac{dy}{dt} = -0.7y, \text{ when } t \text{ is measured in hours. If there are 61 g of reactant present when } t = 0, \text{ how many grams will be left after 3 hours? Give your answer to the nearest tenth of a gram.}$$

$$A) 7.5 \text{ g}$$

$$B) 11.2 \text{ g}$$

$$C) 3.7 \text{ g}$$

$$D) 0.1 \text{ g}$$

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

$$418) y = 9^x$$

$$A) x \ln 9$$

$$B) 9^x \ln 9$$

$$C) 9^x \ln x$$

$$D) 9^x$$

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 $x \rightarrow \infty$.

$$419) 6 + \cos x = O(6)$$

$$420) e^x = o(e^{8x})$$

$$421) \ln x = o(\ln 3x)$$

$$422) \ln x = o(\ln(x^2+5))$$

$$423) x = O(3x)$$

$$424) 6x + \ln x = O(x)$$

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

$$3) \text{ Let } y = x \ln x - x + C \text{ and take its derivative. } \frac{dy}{dx} = (1) \ln x + x \left(\frac{1}{x} \right) - 1 = \ln x$$

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 $-1 \leq x \leq 1$. 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.

$$\cos \theta = \frac{x}{\sqrt{x^2+1}} \leftrightarrow \tan \theta = \frac{1}{x}. \text{ When } x \text{ is negative both functions are still referring to the same angle. However,}$$

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 $-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$ the output is the same angle. However, the range of

$$y = \sin^{-1} x \text{ is } -\frac{\pi}{2} \leq y \leq \frac{\pi}{2}. \text{ Therefore, when plugging in angles outside of that interval the output will be different.}$$

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) $\lim_{x \rightarrow \infty} \frac{\ln(x+1)}{\ln x} = \lim_{x \rightarrow \infty} \frac{1/(x+1)}{1/x} = \lim_{x \rightarrow \infty} \frac{x}{x+1} = 1$
 $\lim_{x \rightarrow \infty} \frac{\ln(x+9975)}{\ln x} = \lim_{x \rightarrow \infty} \frac{1/(x+9975)}{1/x} = \lim_{x \rightarrow \infty} \frac{x}{x+9975} = 1$
 $y = \ln x$, $y = \ln(x+1)$, 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) $\lim_{x \rightarrow \infty} \frac{\sqrt{x^6 + x}}{x^3} = \lim_{x \rightarrow \infty} \frac{\sqrt{x^6 + x}}{\sqrt{x^6}} = \lim_{x \rightarrow \infty} \sqrt{1 + \frac{1}{x^5}} = 1$
 $\lim_{x \rightarrow \infty} \frac{\sqrt{x^6 + x^4}}{x^3} = \lim_{x \rightarrow \infty} \frac{\sqrt{x^6 + x^4}}{\sqrt{x^6}} = \lim_{x \rightarrow \infty} \sqrt{1 + \frac{1}{x^2}} = 1$
Therefore both functions grow at the same rate as $x \rightarrow \infty$.
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)