

ÇANKAYA UNIVERSITY
DEPARTMENT OF MATHEMATICS
November 7, 2005

Math 109
Business Mathematics
First Midterm

Duration: 90 min.
Show all your work

1. (15 pts.) Find the domain of the function

$$f(x) = \frac{1}{\sqrt{5+x}}$$

2. Given $f(x) = -2x^2 - 10x - 13$

(a) (10 pts.) Write $f(x)$ in the form $f(x) = a(x - h)^2 + k$

(b) (15 pts.) Graph $f(x)$

3. (a) (10 pts.) Divide

$$\frac{6 - 5i}{2 - i}$$

(b) (10 pts.) Evaluate

$$i^{35}$$

4. (a) (10 pts.) Find x so that

$$\frac{3}{2} \log_b 4 - \frac{2}{3} \log_b 8 + \log_b 2 = \log_b x$$

(b) (15 pts.) Solve:

$$\log_{10} x + \log_{10} (x + 1) = \log_{10} 6$$

5. (20 pts.) Solve the equation

$$4(2w + 1)^2 - 16(2w + 1) + 15 = 0.$$