

MATH 1010 FINAL
Fall Semester 2006
Version A

Name _____

Instructor _____

ID Verification: _____

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

Solve the equation.

1) $\frac{2x}{5} - \frac{x}{3} = 2$

1) _____

A) -60

B) 30

C) -30

D) 60

Solve.

2) $\sqrt{5x+5} + 5 = 0$

2) _____

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

B) 4

C) 100

D) \emptyset

Solve the equation.

3) $2x^2 + 7x - 4 = 2x + 8$

3) _____

A) $\{-4, 3/2\}$

B) $\{-2, 3\}$

C) $\{-3/2, 4\}$

D) $\{-3, 2\}$

Use the quadratic formula to solve the equation.

4) $x^2 + 16x + 41 = 0$

4) _____

A) $8 - \sqrt{41}, 8 + \sqrt{41}$

B) $-16 + \sqrt{41}$

C) $-8 - \sqrt{23}, -8 + \sqrt{23}$

D) $8 + \sqrt{23}$

Find the domain of the function.

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

5) _____

A) $\{x \mid x \neq 4\}$

B) $\{x \mid x \leq 2\}$

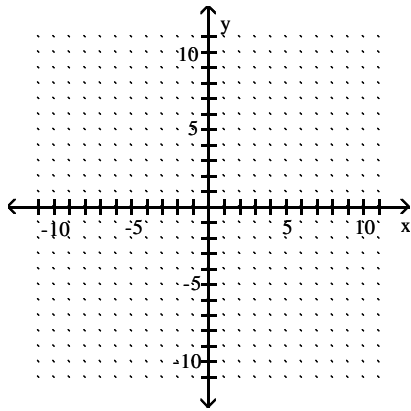
C) $\{x \mid x \neq 2\}$

D) $\{x \mid x \leq 4\}$

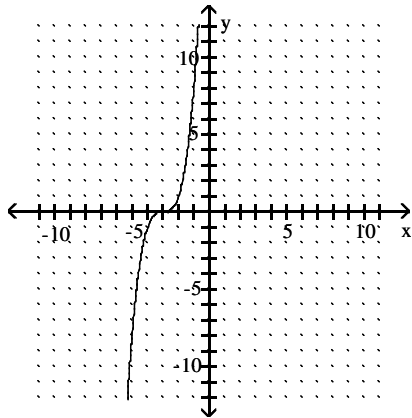
Graph the equation.

6) $y = x^3 + 3$

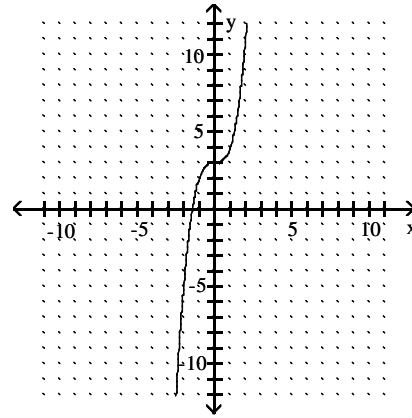
6) _____



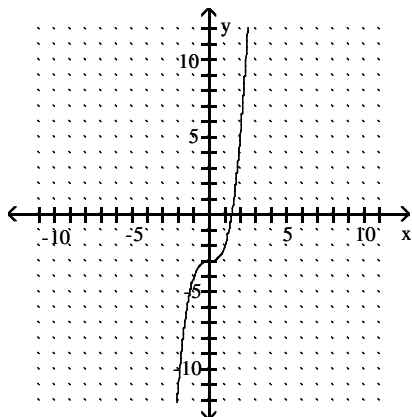
A)



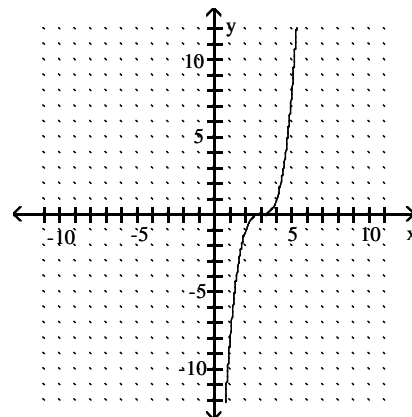
B)



C)



D)



Factor the polynomial completely.

7) $9 - 49x^2$

7) _____

A) $(3 + 7x)(3 - 7x)$

B) $(3 - 7x)^2$

C) $(3 + 7x)^2$

D) prime polynomial

Solve.

8) Scott set up a volleyball net in his backyard. One of the poles, which forms a right angle with the ground, is 6 feet high. To secure the pole, he attached a rope from the top of the pole to a stake 3 feet from the bottom of the pole. To the nearest tenth of a foot, find the length of the rope.

8) _____

A) 45 .0 ft.

B) 5.2 ft.

C) 3.0 ft.

D) 6.7 ft.

Write in terms of i.

9) $\sqrt{-169}$

9) _____

A) $-13i$

B) $-i\sqrt{13}$

C) $13i$

D) ± 13

Find the domain of the rational function.

10) $f(x) = \frac{4x}{-7 + x}$

10) _____

A) $\{x \mid x \text{ is a real number and } x \neq 7\}$

B) $\{x \mid x \text{ is a real number and } x \neq 0\}$

C) $\{x \mid x \text{ is a real number and } x \neq 0, x \neq 7\}$

D) $\{x \mid x \text{ is a real number and } x \neq -7\}$

Use the properties of exponents to simplify the expression. Write with positive exponents.

11) $(b^{2/3})(b^{1/2})$

11) _____

A) $b^{1/3}$

B) $b^{5/3}$

C) $b^{7/6}$

D) $b^{2/5}$

Find the maximum or minimum value of the function.

12) $f(x) = 2x^2 - 4x + 7$

12) _____

A) 5

B) -2

C) 7

D) 23

Find the indicated value.

13) Find $f(-4)$ when $f(x) = 3x^2 - 2x - 2$

13) _____

A) 48

B) 54

C) 38

D) 58

Find the distance between the pair of points.

14) (6, -1) and (4, -5)

14) _____

A) $12\sqrt{3}$ units

B) 2 units

C) $2\sqrt{5}$ units

D) 12 units

Solve the equation.

15) $6x + 8 + 6x - 8 = 2x + 10x - 3$

15) _____

A) 192

B) 0

C) all real numbers

D) \emptyset

Write as an exponential equation.

16) $\log_e \frac{1}{e^3} = -3$

16) _____

A) $e^{-3} = \frac{1}{e^3}$

B) $-3^e = \frac{1}{e^3}$

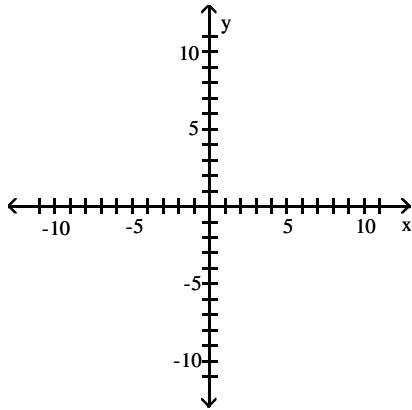
C) $\left(\frac{1}{e^3}\right)^{-3} = e$

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

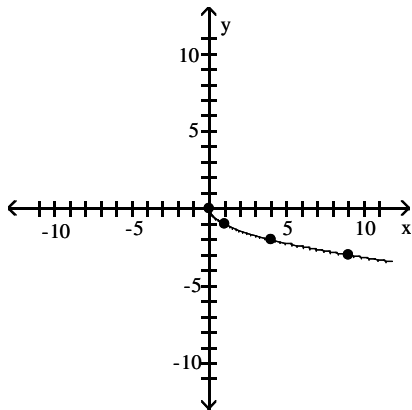
Graph the equation by plotting points.

17) $y = \sqrt{x}$

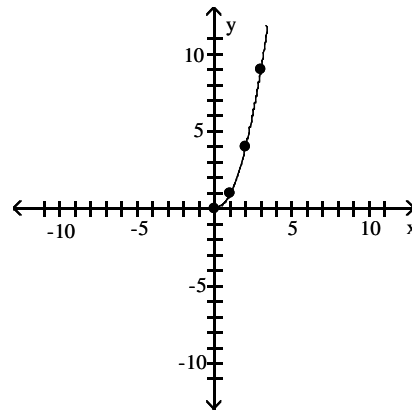
17) _____



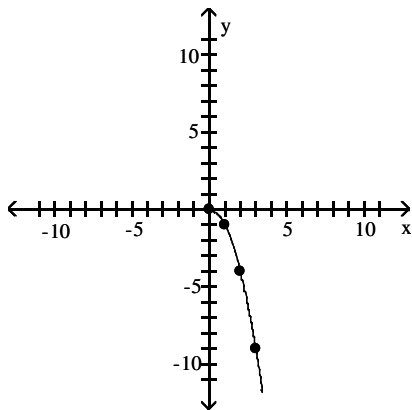
A)



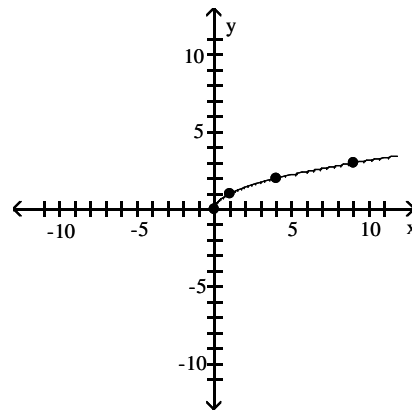
B)



C)



D)



Factor the polynomial completely.

18) $3x^2 + 11x - 4$

18) _____

A) $(3x + 4)(x - 1)$

B) $(3x + 1)(x - 4)$

C) $(3x - 1)(x + 4)$

D) $(3x - 4)(x + 1)$

Write an equation of the line with the given slope and containing the given point. Write the equation in the form $y = mx + b$.

19) Slope 3; through $(-4, -3)$

19) _____

A) $y - 3 = 3x - 4$

B) $y + 3 = x + 4$

C) $y = 3x + 9$

D) $y = 3x - 9$

Solve the absolute value equation.

20) $|6x + 3| = 6$

20) _____

A) $\frac{1}{2}, -\frac{3}{2}$

B) $-\frac{1}{2}, \frac{3}{2}$

C) $1, -3$

D) \emptyset

Use the formula $A = P\left(1 + \frac{r}{n}\right)^{nt}$ to find the amount requested.

A: final amount,

P: principal,

r: annual interest rate,

n: number of times the interest is compounded per year, and

t: number of years

21) A principal of \$1,000 is invested in an account paying an annual interest rate of 8%. Find the amount in the account after 3 years if the account is compounded annually.

21) _____

A) \$1360.49

B) \$1166.40

C) \$259.71

D) \$1259.71

Solve the system of equations for y .

22)

$$\begin{cases} 5x - 3y = 12 \\ x + 2y = 5 \end{cases}$$

22) _____

A) $y = 1$

B) $y = -3$

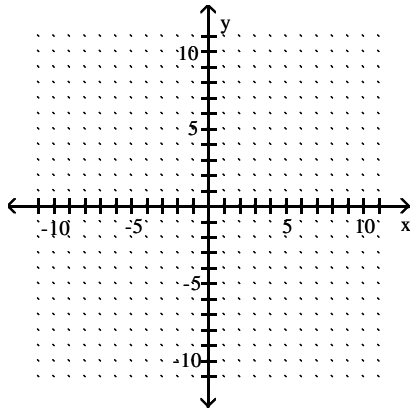
C) $y = 6$

D) $y = 3$

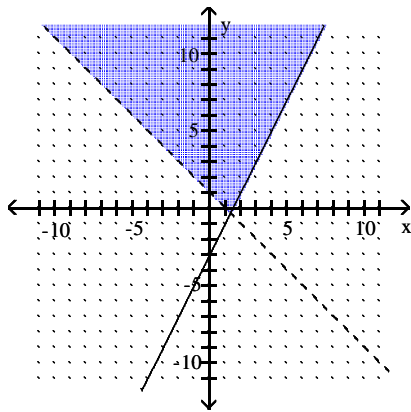
Graph the union or intersection, as indicated.

23) The union of $2x - y \leq 3$ or $x + y > 1$

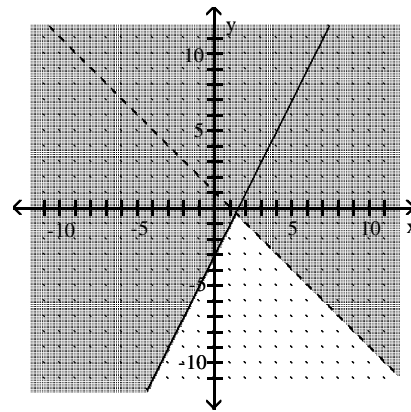
23) _____



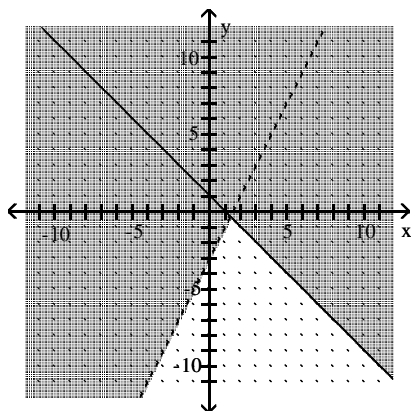
A)



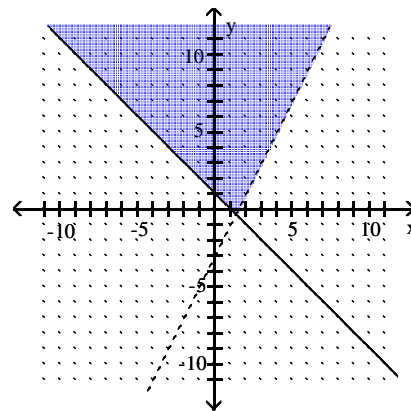
B)



C)



D)



Multiply or divide as indicated. Simplify completely.

24) $\frac{x^2 - 4x + 4}{3x - 6} \div \frac{8x - 16}{24}$

24) _____

A) $\frac{(x - 2)^2}{9}$

B) 1

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

D) 24

Find an equation of the line.

25) Through (3,-5); parallel to $2x - 3y = 9$

25) _____

A) $3x - 2y = 19$

B) $2x + 3y = -1$

C) $2x - 3y = 21$

D) $2x - 3y = -21$

Divide.

26) $(5x^2 - 6x - 27) \div (x - 3)$

26) _____

A) $x - 6$

B) $5x + 9$

C) $5x - 9$

D) $5x^2 + 6$

Simplify. Write the answer with positive exponents.

27) $\frac{(4xy^{-2})^{-2}}{2xy^3}$

27) _____

A) $-\frac{4}{x^3y^{-7}}$

B) $\frac{y}{32}$

C) $-\frac{8y}{x^3}$

D) $\frac{y}{32x^3}$

Perform the indicated operation. Write the result in the form $a + bi$.

28) $(1 + 5i)(1 - 5i)$

28) _____

A) $1 - 25i$

B) $1 - 25i^2$

C) -24

D) 26

Factor the polynomial completely.

29) $x^3 + 16x^2 + 64x$

29) _____

A) $x(x + 8)^2$

B) $x(x + 8)(x - 8)$

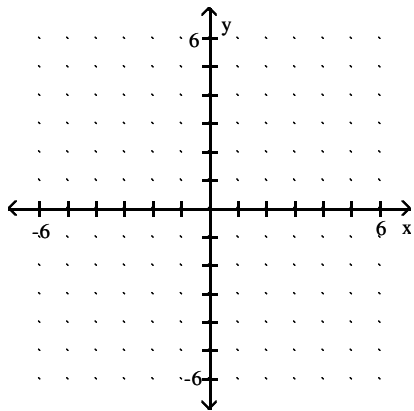
C) $x(x - 8)^2$

D) prime polynomial

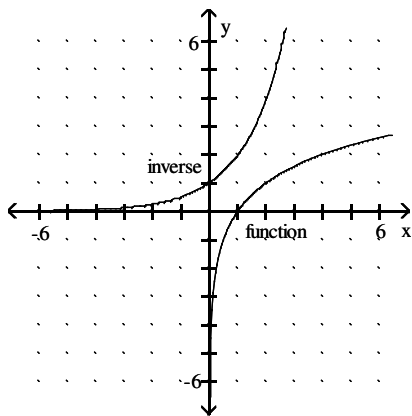
Graph the function and its inverse on the same set of axes.

30) function $y = \log_2 x$;
inverse $y = 2^x$

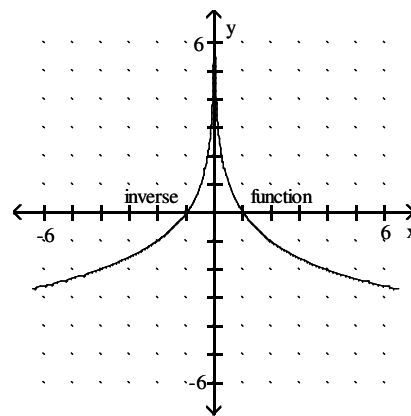
30) _____



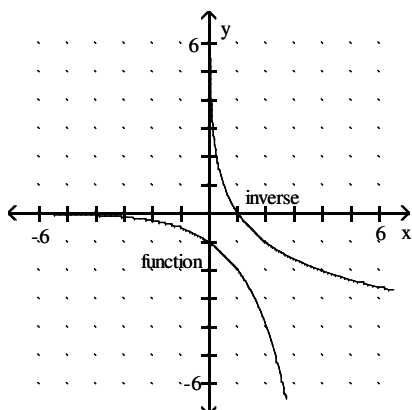
A)



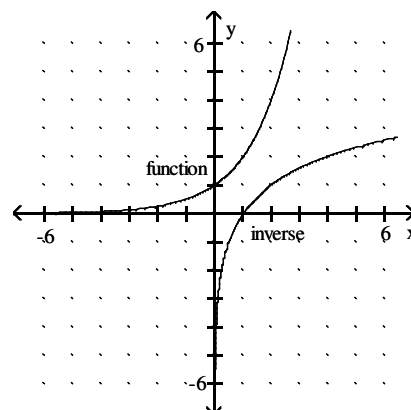
B)



C)



D)



Answer Key

Testname: MATH 1010 FINAL F06 FORM A

- 1) B
- 2) D
- 3) A
- 4) C
- 5) D
- 6) B
- 7) A
- 8) D
- 9) C
- 10) A
- 11) C
- 12) A
- 13) B
- 14) C
- 15) D
- 16) A
- 17) D
- 18) C
- 19) C
- 20) A
- 21) D
- 22) D
- 23) B
- 24) B
- 25) C
- 26) B
- 27) D
- 28) D
- 29) A
- 30) A