

Exam

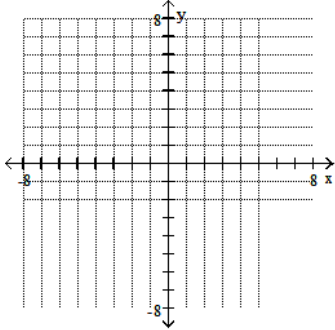
Name \_\_\_\_\_

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

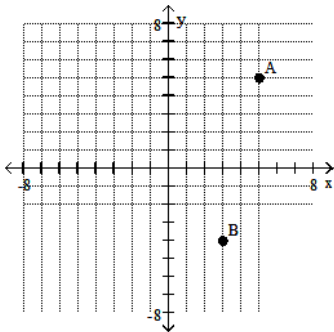
Plot the points on the Cartesian coordinate system provided.

1)  $A(5, 5)$ ,  $B(-4, 3)$

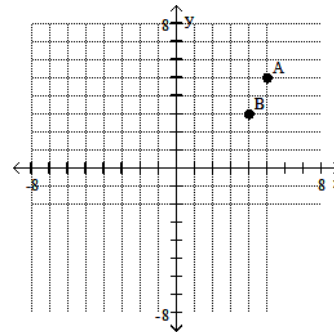
1) \_\_\_\_\_



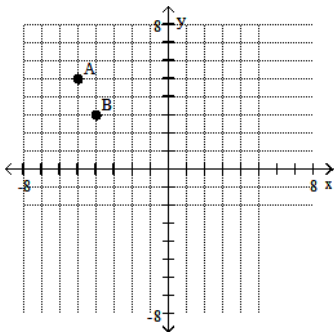
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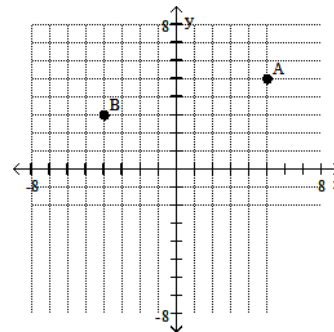
B)



C)

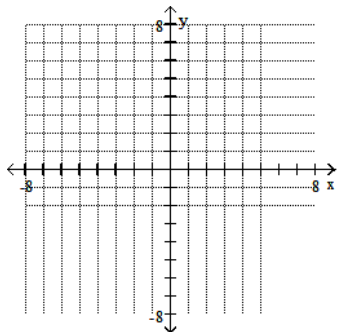


D)

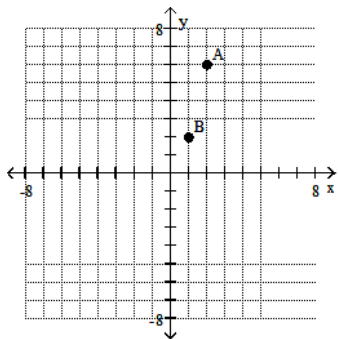


2)  $A(2, -6), B(-1, 2)$

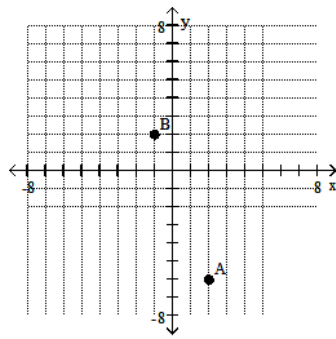
2) \_\_\_\_\_



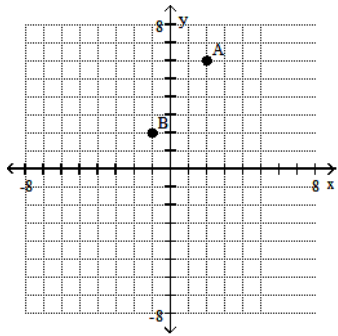
A)



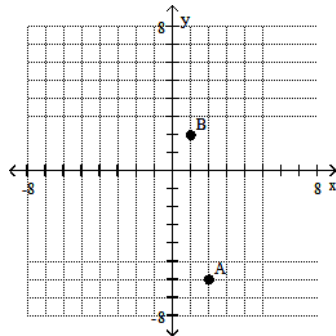
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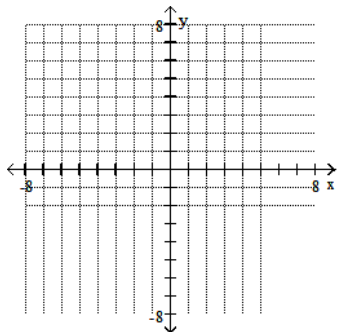


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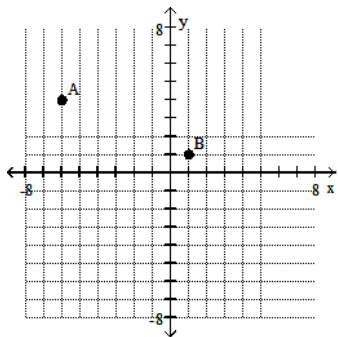


3)  $A(-6, -4), B(-1, 1)$

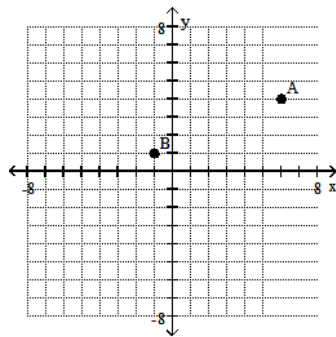
3) \_\_\_\_\_



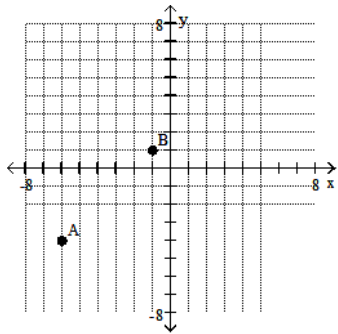
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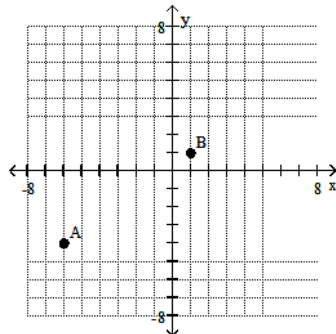
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C)

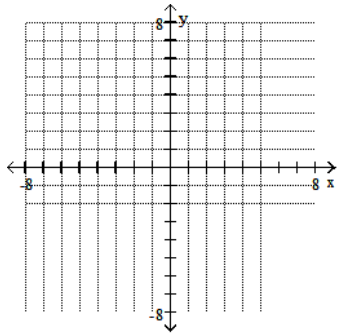


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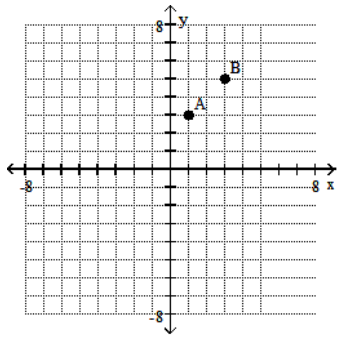


4)  $A(1, 3), B(3, -5)$

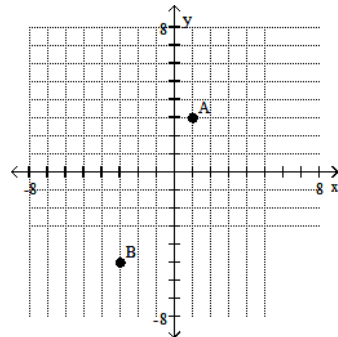
4) \_\_\_\_\_



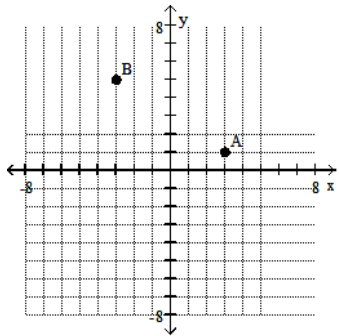
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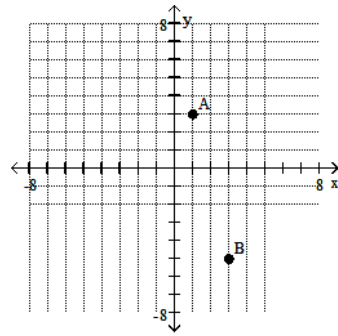
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C)

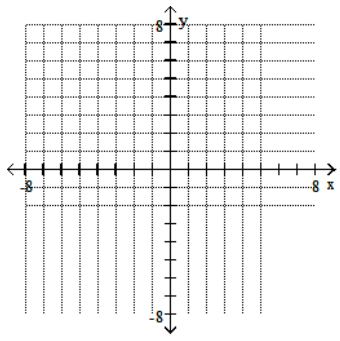


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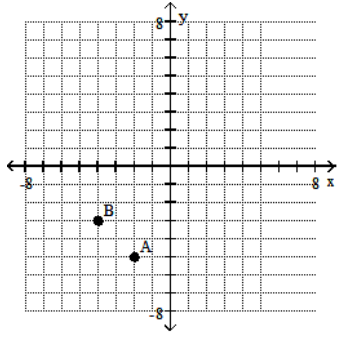


5)  $A(2, 5)$ ,  $B(-4, -3)$

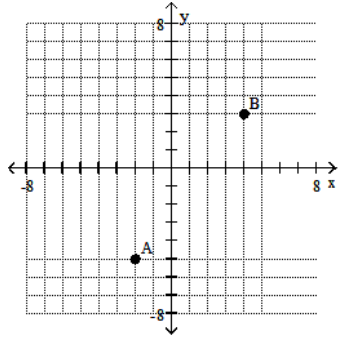
5) \_\_\_\_\_



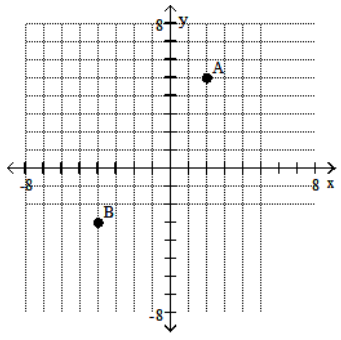
A)



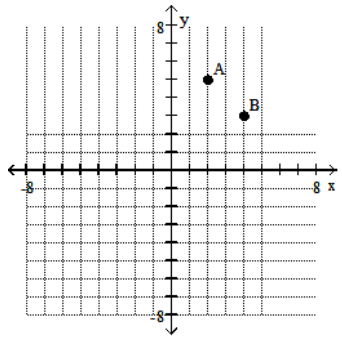
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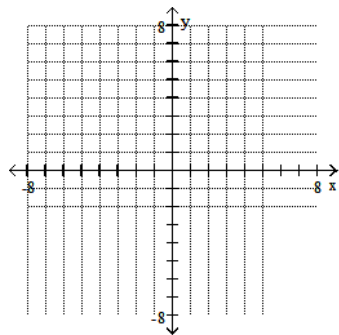


D)

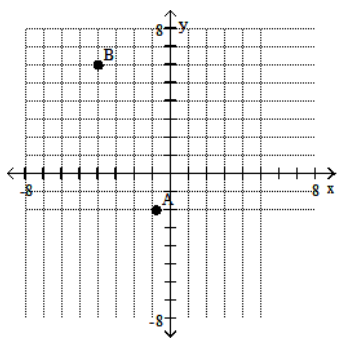


6)  $A(-\frac{4}{5}, -2)$ ,  $B(-4, 6)$

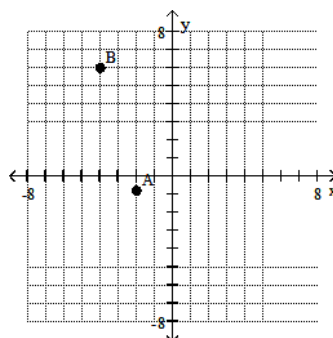
6) \_\_\_\_\_



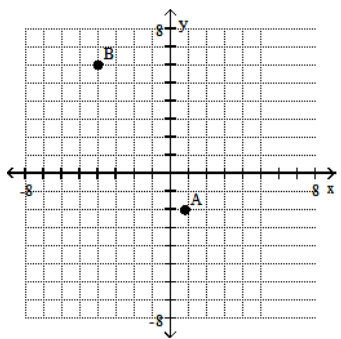
A)



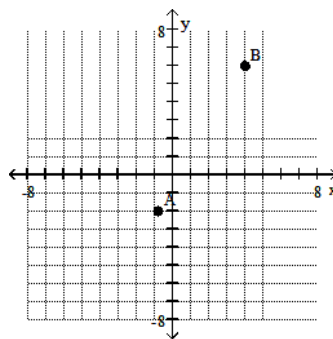
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C)

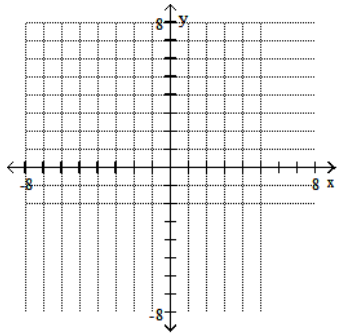


D)

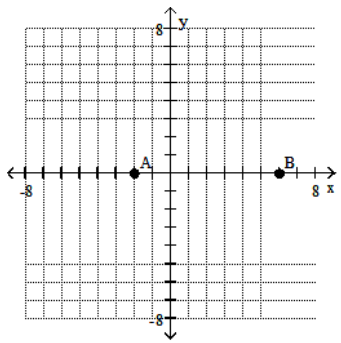


7)  $A(-2, 0)$ ,  $B(0, 6)$

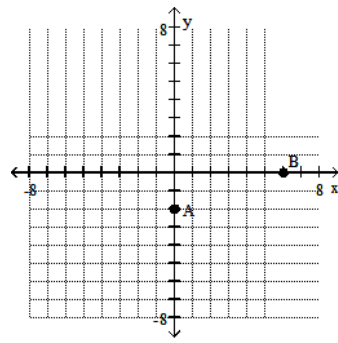
7) \_\_\_\_\_



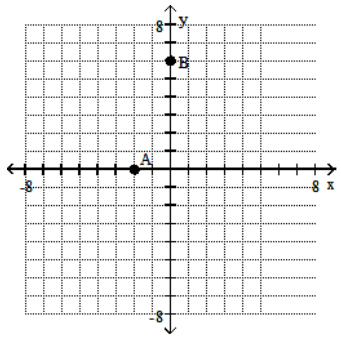
A)



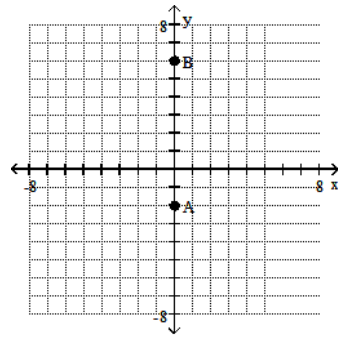
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C)

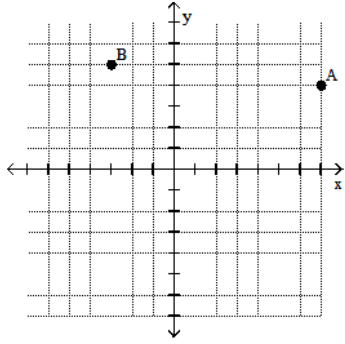


D)



Give the coordinates for the points labeled on the graph.

8)

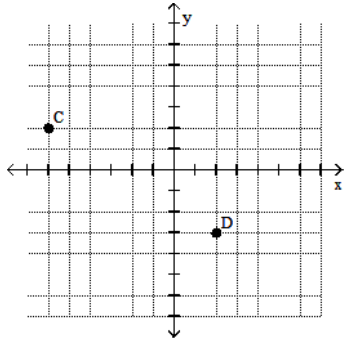


8) \_\_\_\_\_

- A) A(7, 5); B(4, 5)
- C) A(4, 30); B(5, -3)

- B) A(7, 4); B(5, -3)
- D) A(7, 4); B(-3, 5)

9)



9) \_\_\_\_\_

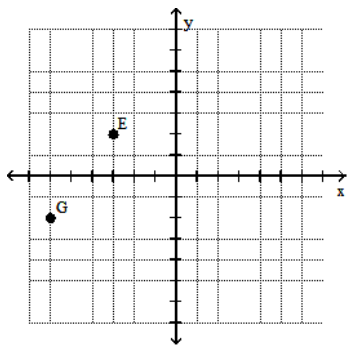
- A) C(2, 4); D(-3, 2)
- C) C(-6, -3); D(2, -3)

- B) C(-6, 2); D(-3, 2)
- D) C(-6, 2); D(2, -3)



10)

10) \_\_\_\_\_

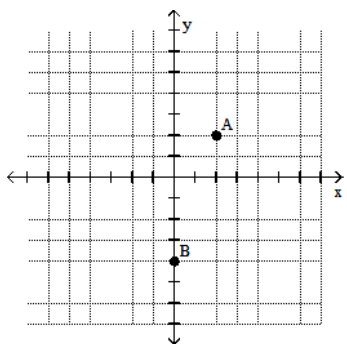


- A) E(-3, -2); G(2, -2)
- C) E(2, 10); G(-2, -6)

- B) E(-3, 2); G(-2, -6)
- D) E(-3, 2); G(-6, -2)

11)

11) \_\_\_\_\_



- A) A(2, 2); B(0, 4)
- C) A(2, -2); B(1, -4)

- B) A(2, 2); B(0, -4)
- D) A(-2, 2); B(0, 4)

12) Determine which of the following points lie on the graph of the linear equation  $4x + 5y = 20$ .

12) \_\_\_\_\_

- A) (0, 0)
- B) (5, 4)
- C) (-5, 8)
- D) (-4, 20)
- E) (0, -4)

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

13) On the line  $2y = 6$ , is there a point whose first coordinate is 4? If so, name the point.

13) \_\_\_\_\_

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

Determine if the given point is on the graph of the equation.

14)  $4x + 5y = 8$ ; (0, 2)

14) \_\_\_\_\_

- A) No
- B) Yes

15)  $\frac{3}{4}x + y = 1$ ; (-4, 4)

15) \_\_\_\_\_

- A) Yes
- B) No

16)  $-\frac{2}{3}x + y = -1; (-1, 0)$

16) \_\_\_\_\_

A) No

B) Yes

The equation is in the form  $y = mx + b$ . Identify  $m$  and  $b$ .

17)  $y = \frac{5}{2}x - \frac{9}{2}$

17) \_\_\_\_\_

A)  $m = \frac{5}{2}; b = \frac{9}{2}$

B)  $m = \frac{5}{2}; b = -\frac{9}{2}$

C)  $m = \frac{9}{2}; b = \frac{5}{2}$

D)  $m = -\frac{9}{2}; b = \frac{5}{2}$

18)  $y = x - 6$

18) \_\_\_\_\_

A)  $m = -6; b = 1$

B)  $m = 1; b = -6$

C)  $m = 0; b = 6$

D)  $m = -6; b = -1$

19)  $y = -4x - 5$

19) \_\_\_\_\_

A)  $m = -4; b = 5$

B)  $m = -4; b = -5$

C)  $m = -5; b = -4$

D)  $m = 5; b = -4$

20)  $y = 15$

20) \_\_\_\_\_

A)  $m = 0; b = 0$

B)  $m = 0; b = 15$

C)  $m = 15; b = 15$

D)  $m = 15; b = 0$

21) Find the standard form of the linear equation  $x = 3y - 4$ .

21) \_\_\_\_\_

A)  $3y = -x + 4$

B)  $x = y - 4$

C)  $x - 3y = -4$

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

E) none of these

22) Find the standard form of the linear equation  $4x - 7y = 14$ .

22) \_\_\_\_\_

A)  $\frac{2}{7}x - \frac{1}{2}y = 1$

B)  $y = \frac{4}{7}x - 2$

C)  $4x = 7y + 14$

D)  $7y = -4x + 14$

E) none of these

23) Find the standard form of the equation  $-2x + 3y = 6$ .

23) \_\_\_\_\_

A)  $y = -\frac{2}{3}x + 6$

B)  $y = \frac{2}{3}x + 2$

C)  $y = \frac{2}{3}x + 6$

D)  $y = -\frac{2}{3}x + 2$

E) none of these

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

24) Write the equation of the line  $x + 3y = 1$  in standard form. 24) \_\_\_\_\_

25) Write the equation of the line  $-4x + 2y = 5$  in standard form. 25) \_\_\_\_\_

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

26) Which of the following equations describe the same line as the equation  $3x + 4y = 5$ ? 26) \_\_\_\_\_

A)  $y = \frac{3}{4}x + 5$

B)  $y = \frac{3}{4}x + \frac{5}{4}$

C)  $5 - 3x - 4y = 0$

D)  $6x + 8y = 5$

E) none of these

Write the equation in slope-intercept form.

27)  $16x + 10y = 5$  27) \_\_\_\_\_

A)  $y = 16x - 5$

B)  $y = \frac{8}{5}x - \frac{1}{2}$

C)  $y = -\frac{8}{5}x + \frac{1}{2}$

D)  $y = \frac{8}{5}x + \frac{1}{2}$

28)  $4x - 8y = 7$  28) \_\_\_\_\_

A)  $y = 4x - 7$

B)  $y = \frac{1}{2}x + \frac{7}{8}$

C)  $y = 2x + \frac{7}{4}$

D)  $y = \frac{1}{2}x - \frac{7}{8}$

29)  $x - 5y = 9$  29) \_\_\_\_\_

A)  $y = 5x - 9$

B)  $y = x - \frac{9}{5}$

C)  $y = \frac{1}{5}x - \frac{9}{5}$

D)  $y = \frac{1}{5}x - 9$

30) Find the x-intercept of the line  $y = 8x - 12$ . 30) \_\_\_\_\_

A)  $(0, -12)$

B)  $\left(\frac{3}{2}, 0\right)$

C)  $(8, 0)$

D)  $\left(0, \frac{3}{2}\right)$

E) none of these

31) Find the x-intercept of the line  $y = 2x + 5$ . 31) \_\_\_\_\_

A)  $\left(-\frac{5}{2}, 0\right)$

B)  $\left(0, -\frac{5}{2}\right)$

C)  $(0, 5)$

D)  $(5, 0)$

E) none of these

- 32) Find the y-intercept of the line  $y = 0.5x + 4$ . 32) \_\_\_\_\_  
 A) (1, 0)  
 B) (0, 4)  
 C) (4, 0)  
 D) (0, 1)  
 E) none of these
- 33) Find the y-intercept of the line  $x - y = 3$ . 33) \_\_\_\_\_  
 A) (0, -3)  
 B) (0, 3)  
 C) (-3, 0)  
 D) (3, 0)  
 E) none of these
- 34) Find the y-intercept of the line  $2y - x = 6$ . 34) \_\_\_\_\_  
 A) (-6, 0)  
 B) (0, -6)  
 C) (0, 3)  
 D) (3, 0)  
 E) none of these
- 35) Find the y-intercept of the line  $y = 0.5x + 4$ . 35) \_\_\_\_\_  
 A) (0, 4)  
 B) (0, 1)  
 C) (4, 0)  
 D) (1, 0)  
 E) none of these.

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

- 36) Find the x-intercept and y-intercept for the line  $y = -2x + 6$ . 36) \_\_\_\_\_
- 37) Find the x-intercept and y-intercept for the line  $y = 2$ . 37) \_\_\_\_\_
- 38) Find the x-intercept and y-intercept for the line  $x = -3$ . 38) \_\_\_\_\_
- 39) Find the x-intercept and y-intercept for the line  $y = 5x$ . 39) \_\_\_\_\_

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

- 40) The coordinates of the x-intercept are the same as the coordinates of the y-intercept on the graph of the line whose equation is 40) \_\_\_\_\_  
 A)  $2x + y = 2$   
 B)  $2x + 2y = 8$   
 C)  $x - 3y = 0$   
 D)  $2x - 3y = 3$   
 E) none of these

Find the intercepts for the equation.

41)  $y = -x + 5$

- A) x-intercept: (0, 0); y-intercept: (0, 5)  
C) x-intercept: (5, 0); y-intercept: (0, 5)

- B) x-intercept: (5, 0); y-intercept: (0, -5)  
D) x-intercept: (2, 0); y-intercept: (0, 3)

41) \_\_\_\_\_

Find the x- and y-intercepts for the equation.

42)  $y = 5x - 3$

- A) x-intercept:  $\left(-\frac{3}{5}, 0\right)$ , y-intercept: (0, -3)  
C) x-intercept:  $\left(\frac{3}{5}, 0\right)$ , y-intercept: (0, 3)

- B) x-intercept: (-3, 0), y-intercept:  $\left(0, \frac{3}{5}\right)$   
D) x-intercept:  $\left(\frac{3}{5}, 0\right)$ , y-intercept: (0, -3)

42) \_\_\_\_\_

43)  $y = 5x$

- A) x-intercept: (0, 0), y-intercept: (0, 0)  
C) x-intercept: (5, 0), y-intercept: (0, 0)

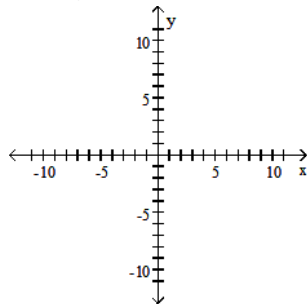
- B) x-intercept: (0, 0), y-intercept:  $\left(0, \frac{1}{5}\right)$   
D) x-intercept: (-5, 0), y-intercept: (0, 0)

43) \_\_\_\_\_

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

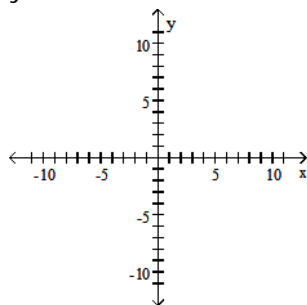
Sketch the graph of the linear equation. Label the coordinates of the y-intercept and the x-intercept.

44)  $2x - 5y = -10$



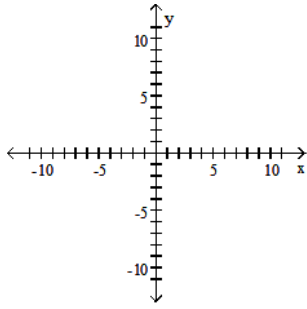
44) \_\_\_\_\_

45)  $y = -2x + 3$



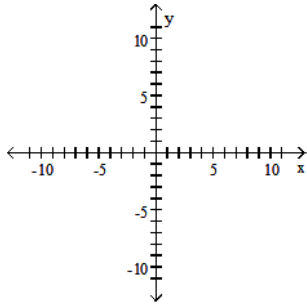
45) \_\_\_\_\_

46)  $3y + 2x = 6$



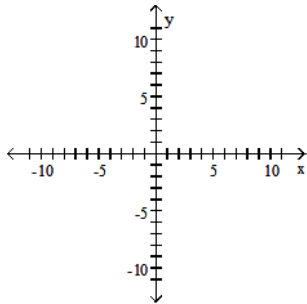
46) \_\_\_\_\_

47)  $5x - 10y = 20$



47) \_\_\_\_\_

48)  $y - 3x = 0$



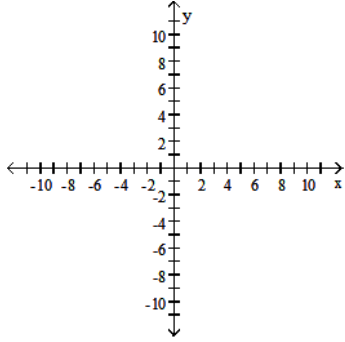
48) \_\_\_\_\_

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

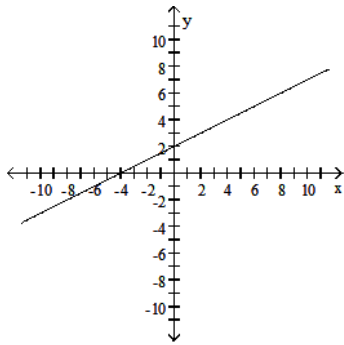
Graph the equation.

49)  $y = -\frac{1}{2}x - 4$

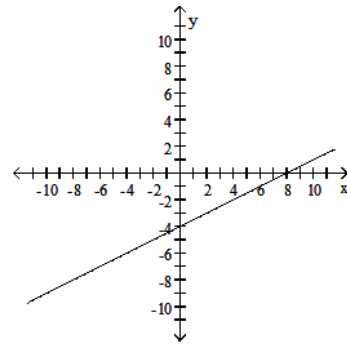
49) \_\_\_\_\_



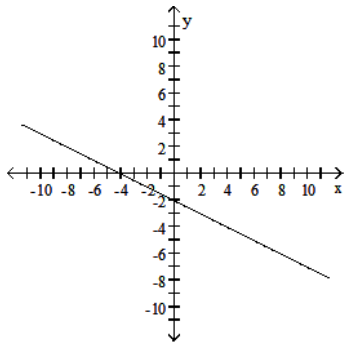
A)



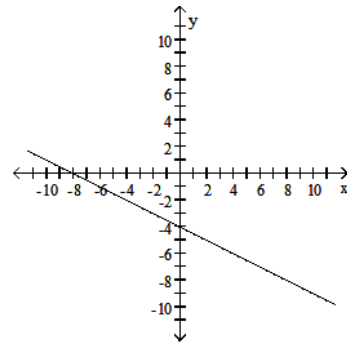
B)



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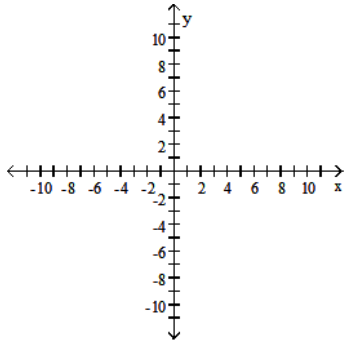


D)

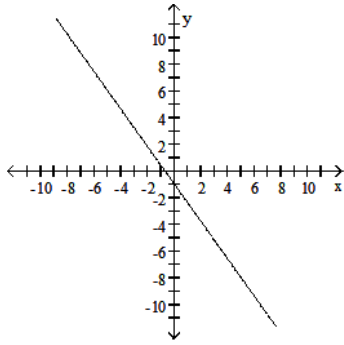


50)  $5y + 7x = 5$

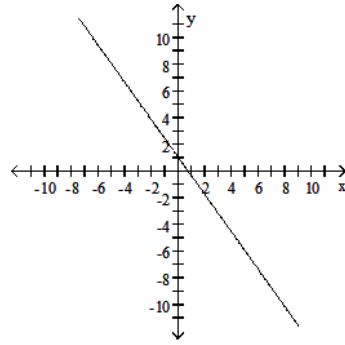
50) \_\_\_\_\_



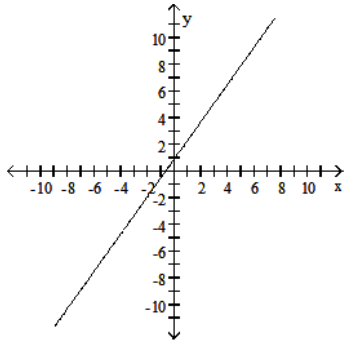
A)



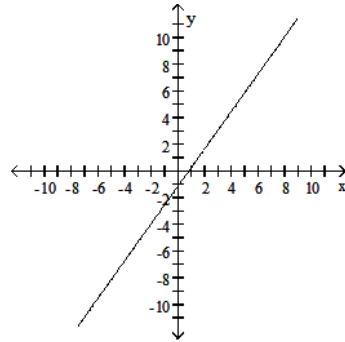
B)



C)



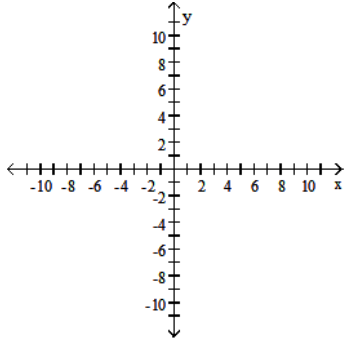
D)



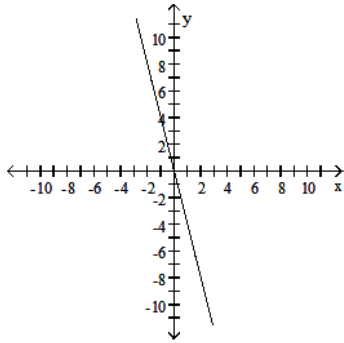


51)  $4x - 20y = 0$

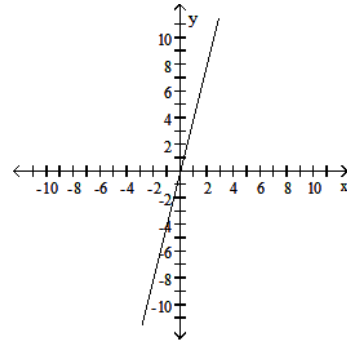
51) \_\_\_\_\_



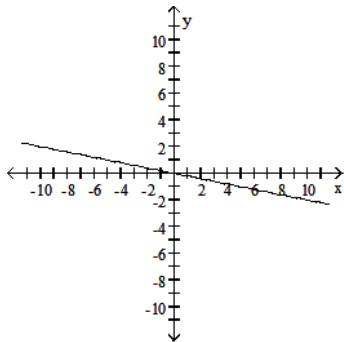
A)



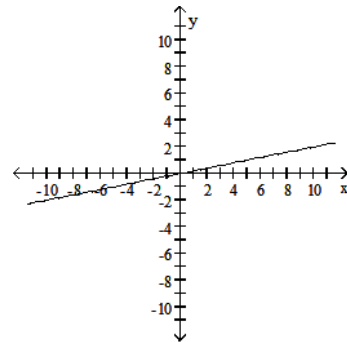
B)



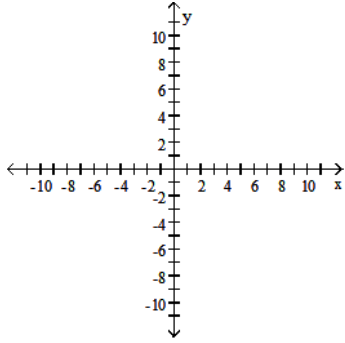
C)



D)

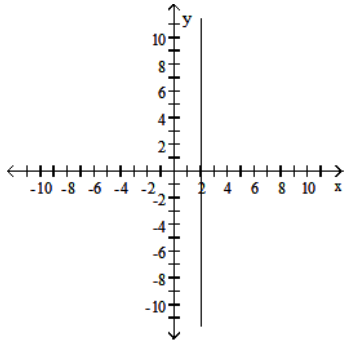


52)  $x = -2$

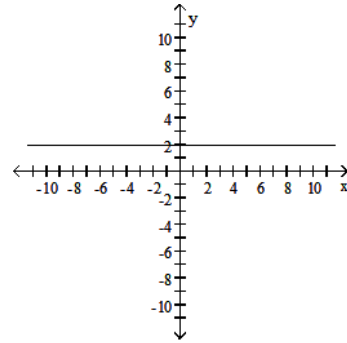


52) \_\_\_\_\_

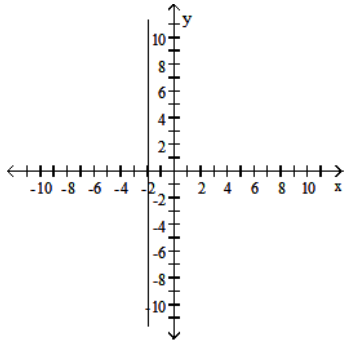
A)



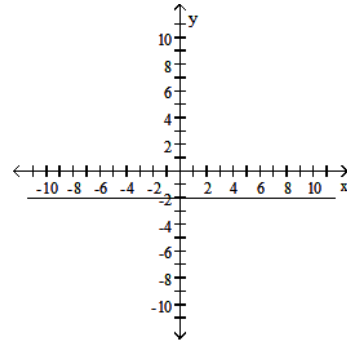
B)



C)

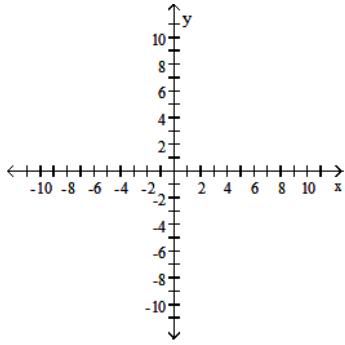


D)

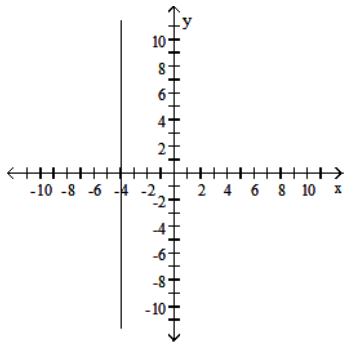


53)  $y = 4$

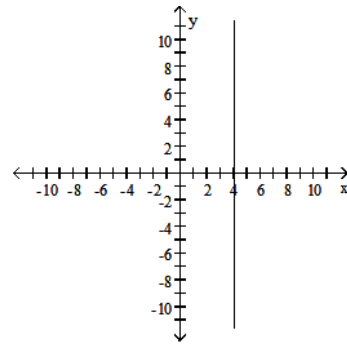
53) \_\_\_\_\_



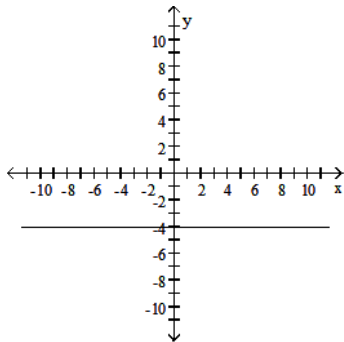
A)



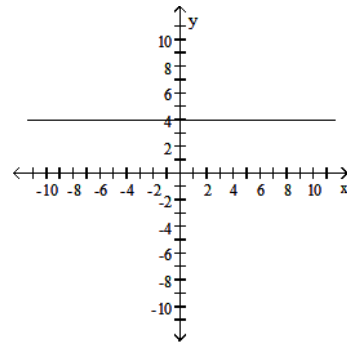
B)



C)



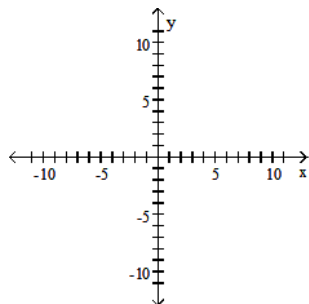
D)



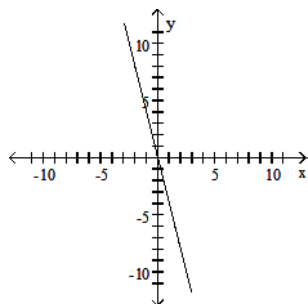
Graph the linear equation.

54)  $y = 4x$

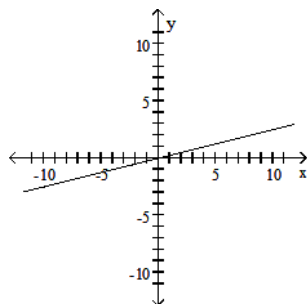
54) \_\_\_\_\_



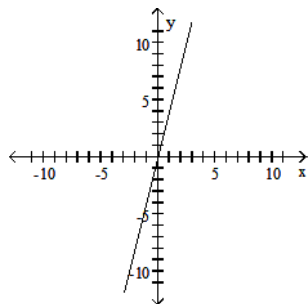
A)



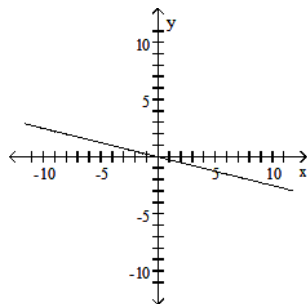
B)



C)



D)

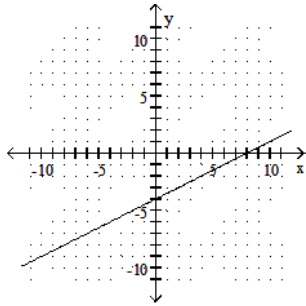


Choose the graph that matches the equation.

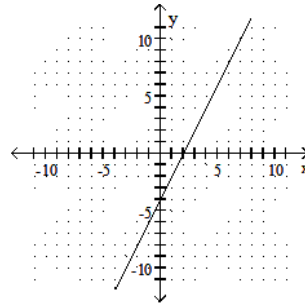
55)  $2x - y = 4$

55) \_\_\_\_\_

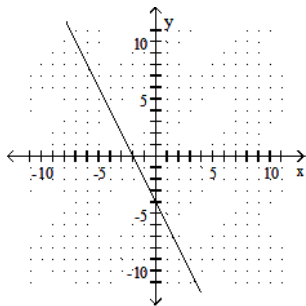
A)



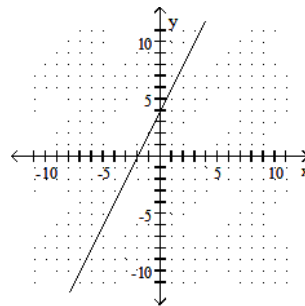
B)



C)



D)

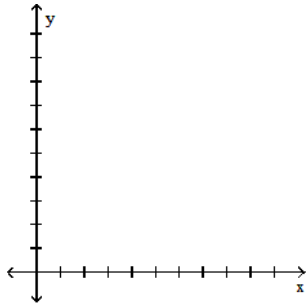


SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

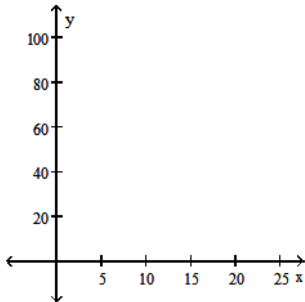
Solve the problem.

56) The value  $y$  of a machine (in dollars) is known to depreciate linearly with time  $x$  (measured in years from the time it was bought new). Suppose that  $y$  is related to  $x$  by the equation  $y = 2000 - 200x$ . 56) \_\_\_\_\_

- Sketch the graph of this linear equation for  $0 \leq x \leq 10$ .
- What is the value of the machine when it is 5 years old?
- What is the economic interpretation of the  $y$ -intercept of the graph?
- When will the value of the machine reach the scrap value of \$400?

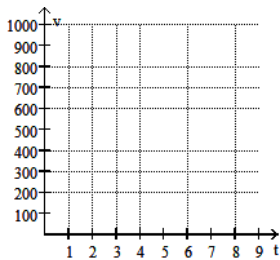


- 57) A towing company charges a fixed amount in addition to a per-mile charge to tow a car. The total charge  $y$  in dollars is related to the towing distance  $x$  in miles by the equation  $y = 30 + 2x$ . 57) \_\_\_\_\_
- (a) Sketch the graph of this equation for  $0 \leq x \leq 25$ .
- (b) What is the charge of towing a car for 15 miles?
- (c) If the company charged a customer \$50 to tow his car, what was the corresponding tow distance?



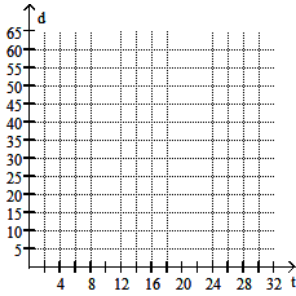
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 58) The value,  $v$ , in hundreds of dollars, of Juan's television is approximated by  $v = -0.50t + 8$ , where  $t$  is the number of years since he first bought the television. Graph the equation and use the graph to estimate the value of the television 4 years after it was purchased. 58) \_\_\_\_\_



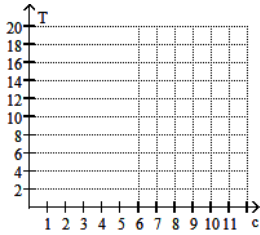
- A) \$1000                      B) \$400                      C) \$720                      D) \$600

- 59) During the month of January, the depth,  $d$ , of snow in inches at the base of one ski resort could be approximated by  $d = -2t + 68$ , where  $t$  is the number of days since December 31st. Graph the equation and use the graph to estimate the depth of snow on January 28th. 59) \_\_\_\_\_



- A) 40 in.                      B) 17 in.                      C) 12 in.                      D) 20 in.

- 60) The cost,  $T$ , in hundreds of dollars, of tuition at one community college is given by  $T = 3 + 1.25c$ , where  $c$  is the number of credits for which a student registers. Graph the equation and use the graph to estimate the cost of tuition if a student registers for 8 credits. 60) \_\_\_\_\_



- A) \$2200                      B) \$1800                      C) \$1300                      D) \$1000

Find an equation for the line with the given conditions.

- 61) y-intercept  $(0, 7)$ , x-intercept  $(-6, 0)$  61) \_\_\_\_\_  
 A)  $y = \frac{7}{6}x + 7$               B)  $y = -\frac{7}{6}x + 7$               C)  $y = -\frac{6}{7}x - 6$               D)  $y = \frac{6}{7}x - 6$

The general form of the equation of a line is  $cx + dy = e$ , where not both  $c$  and  $d$  are 0. Find the general form of the equation.

- 62)  $y = 9x + 5$  62) \_\_\_\_\_  
 A)  $x - y = \frac{5}{9}$                       B)  $-9x - y = 5$                       C)  $9x - y = -5$                       D)  $9x + y = 5$

- 63)  $y = \frac{2}{3}x - 5$  63) \_\_\_\_\_  
 A)  $2x + 3y = -5$                       B)  $2x + 3y = 10$                       C)  $2x - 3y = 15$                       D)  $3x - 2y = -15$

- 64) Find the slope of the line  $3x - 2y + 12 = 0$ . 64) \_\_\_\_\_
- A)  $-\frac{2}{3}$
  - B) 3
  - C)  $\frac{3}{2}$
  - D) -2
  - E) none of these
- 65) Find the slope of the line  $x = -2$ . 65) \_\_\_\_\_
- A)  $\frac{1}{2}$
  - B) -2
  - C) undefined
  - D) 0
  - E) none of these
- 66) Find the slope of the line  $y = 3$ . 66) \_\_\_\_\_
- A)  $\frac{1}{3}$
  - B) 3
  - C) 1
  - D) 0
  - E) none of these
- 67) Find the slope of the line  $y - 2 = 3(x + 5)$ . 67) \_\_\_\_\_
- A) 3
  - B) -2
  - C)  $-\frac{3}{2}$
  - D)  $\frac{3}{2}$
  - E) none of these
- 68) Find the slope of the line  $y + 3 = -(x - 2)$ . 68) \_\_\_\_\_
- A)  $\frac{3}{2}$
  - B) -1
  - C) 1
  - D) 3
  - E) none of these



69) Find the slope of the line  $5y + 7x - 43 = 0$ .

69) \_\_\_\_\_

- A) -7
- B)  $-\frac{7}{5}$
- C) 7
- D)  $\frac{43}{5}$
- E) none of these

70) Find the slope of the line passing through the points (2, 0) and (2, 6).

70) \_\_\_\_\_

- A) undefined
- B) 0
- C)  $\frac{2}{3}$
- D) 4
- E) none of these

71) Find the slope of the line passing through the points (2, -5) and (-1, 3).

71) \_\_\_\_\_

- A)  $-\frac{8}{3}$
- B)  $-\frac{2}{5}$
- C)  $-\frac{3}{8}$
- D)  $-\frac{5}{2}$
- E) none of these

Find the slope of the line.

72)  $y = 2x + 1$

72) \_\_\_\_\_

- A) 2
- B) -1
- C) 1
- D) -2

73)  $2x + 5y = 26$

73) \_\_\_\_\_

- A)  $-\frac{5}{2}$
- B)  $\frac{5}{2}$
- C)  $-\frac{2}{5}$
- D)  $\frac{2}{5}$

74)  $4x - 5y = 18$

74) \_\_\_\_\_

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

75)  $y = -2$

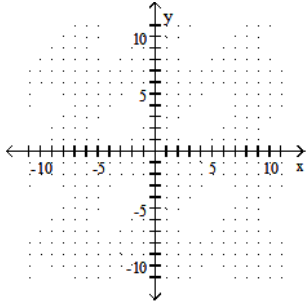
75) \_\_\_\_\_

- A) undefined
- B) -2
- C) 2
- D) 0

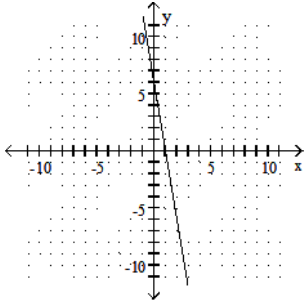
Graph the line containing the given pair of points and find the slope.

76)  $(-6, 0)$   $(0, -1)$

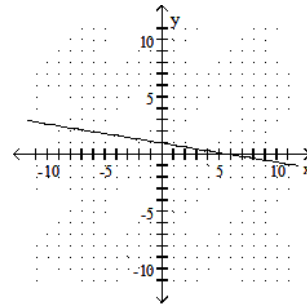
76) \_\_\_\_\_



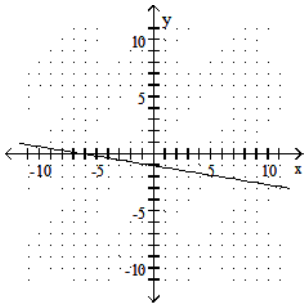
A) 6



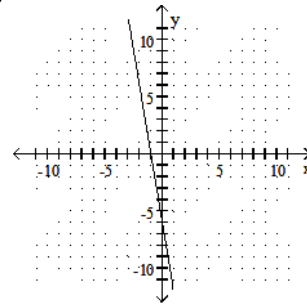
B)  $\frac{1}{6}$



C)  $-\frac{1}{6}$

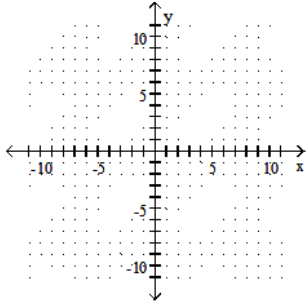


D) -6

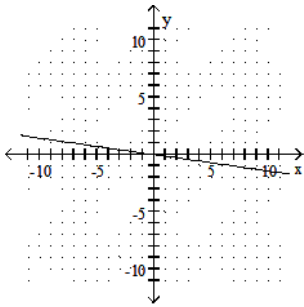


77) (1, 7) (0, 0)

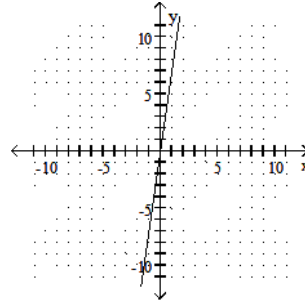
77) \_\_\_\_\_



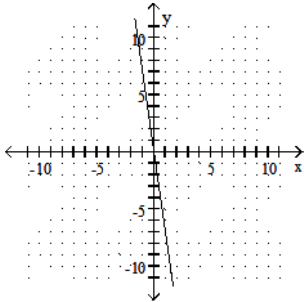
A)  $-\frac{1}{7}$



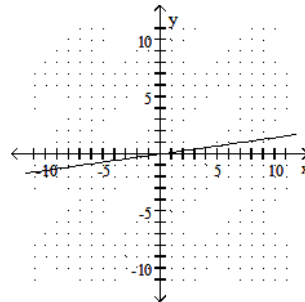
B) 7



C) -7

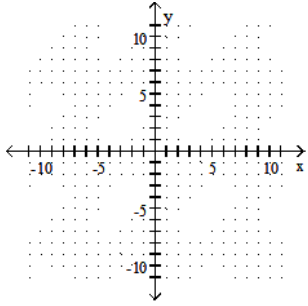


D)  $\frac{1}{7}$

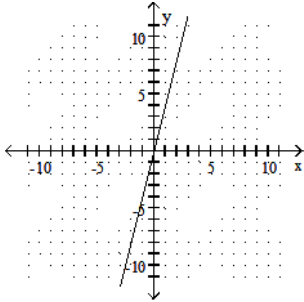


78) (2, -8) (-1, 4)

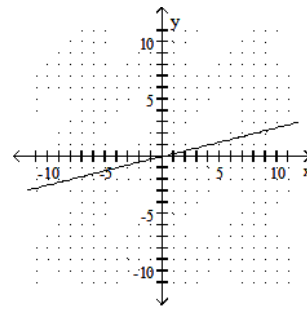
78) \_\_\_\_\_



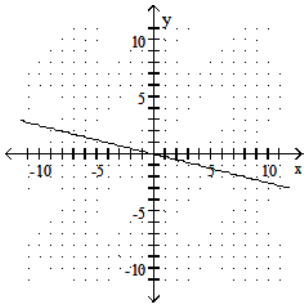
A) 4



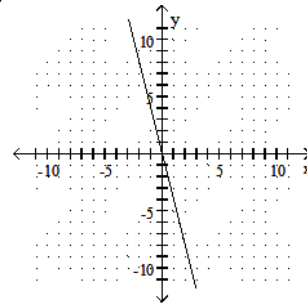
B)  $\frac{1}{4}$



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

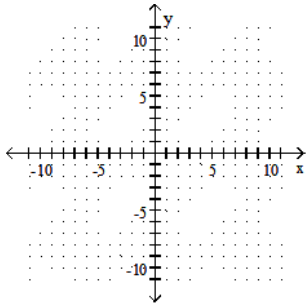


D) - 4

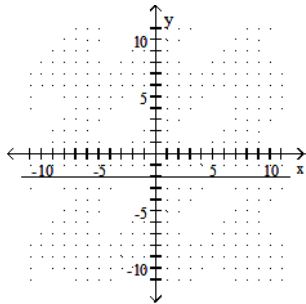


79)  $(3, 2)$   $(-4, 2)$

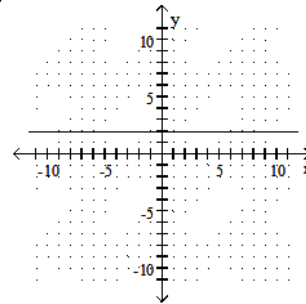
79) \_\_\_\_\_



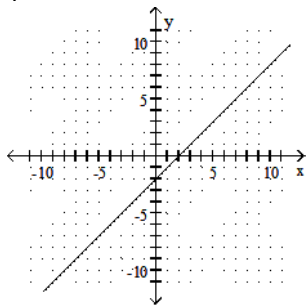
A) 0



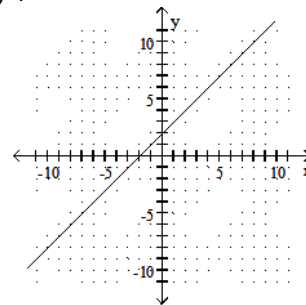
B) 0



C) 1



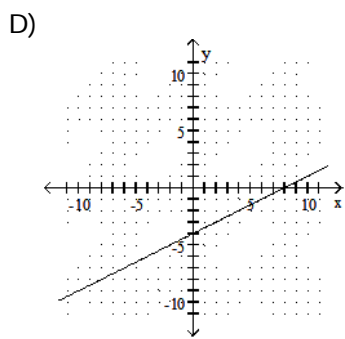
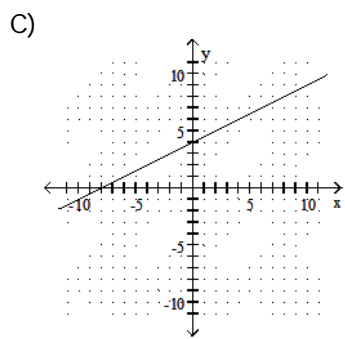
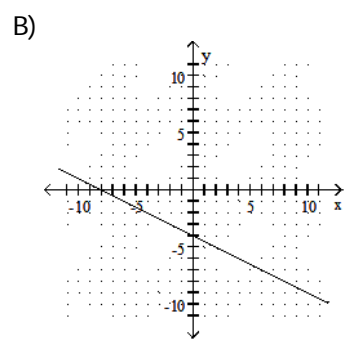
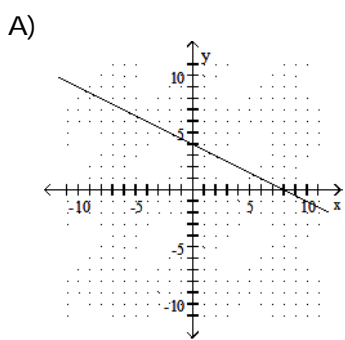
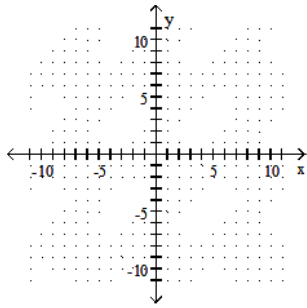
D) 1



Graph the line on the coordinate plane using the given information.

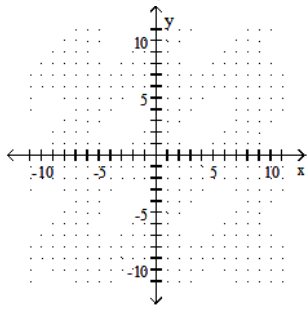
80) Passes through  $(0, 4)$  and  $m = \frac{1}{2}$

80) \_\_\_\_\_

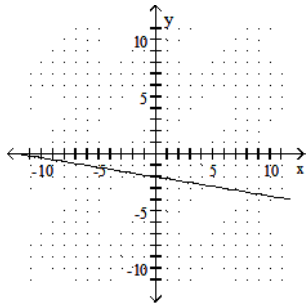


81) Passes through  $(-2, -10)$  and  $m = 6$

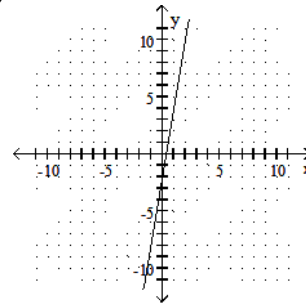
81) \_\_\_\_\_



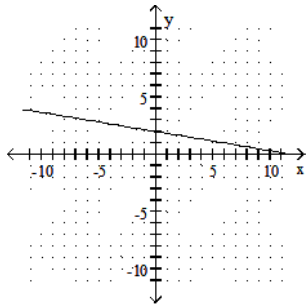
A)



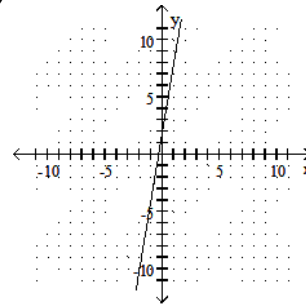
B)



C)

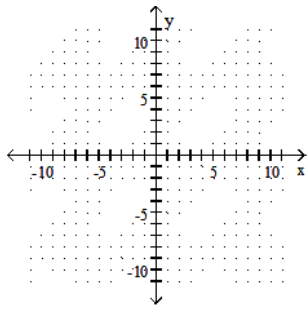


D)

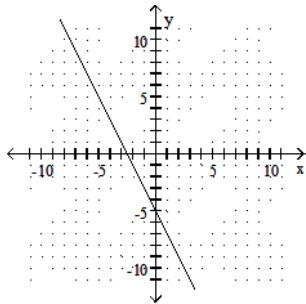


82) Passes through (0, 5) and  $m = -2$

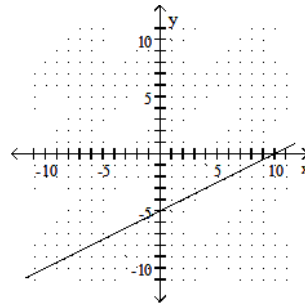
82) \_\_\_\_\_



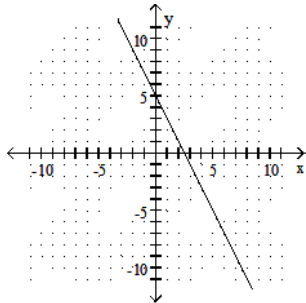
A)



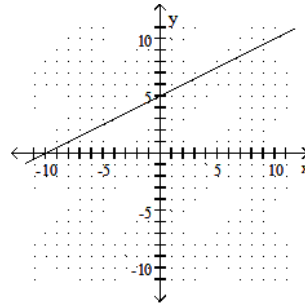
B)



C)



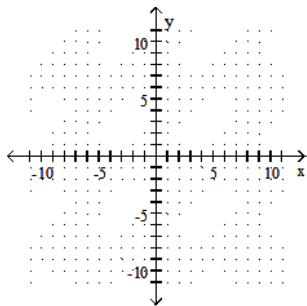
D)



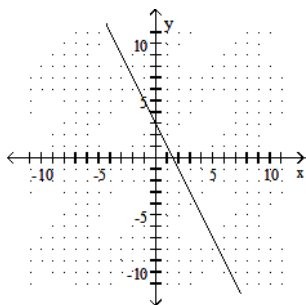


83) Passes through  $(0, 3)$  and  $m = -\frac{1}{2}$

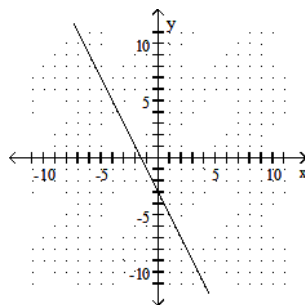
83) \_\_\_\_\_



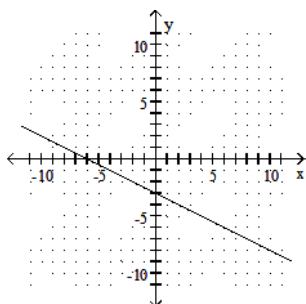
A)



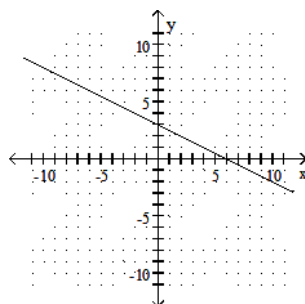
B)



C)

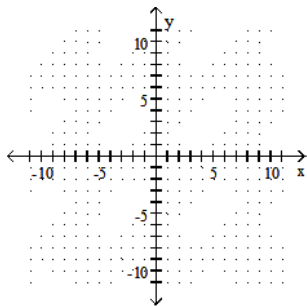


D)

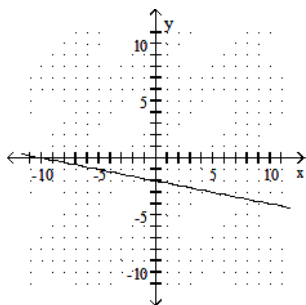


84) Passes through (10, 0) and  $m = -\frac{1}{5}$

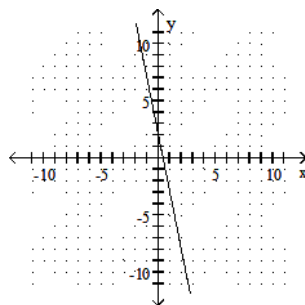
84) \_\_\_\_\_



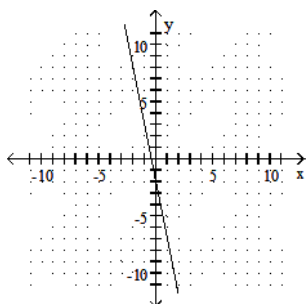
A)



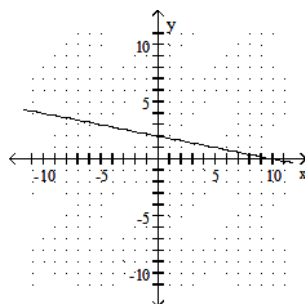
B)



C)

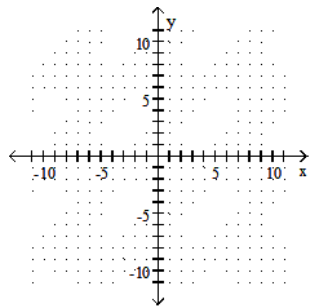


D)

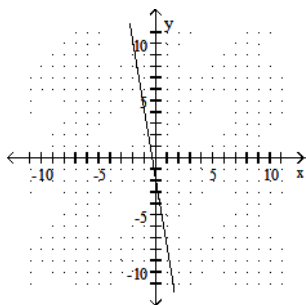


85) Passes through  $(0, 2)$  and  $m = -\frac{1}{6}$

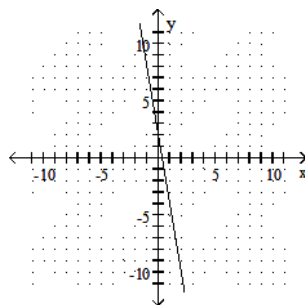
85) \_\_\_\_\_



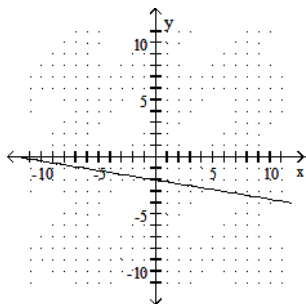
A)



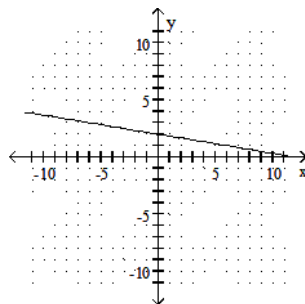
B)



C)

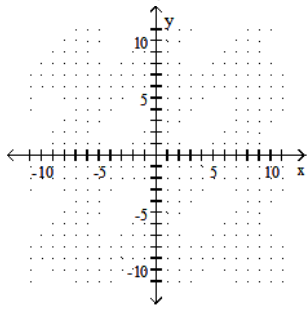


D)

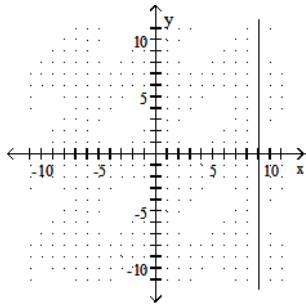


86) Passes through (3, 9) and  $m = 0$

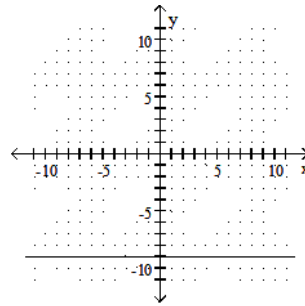
86) \_\_\_\_\_



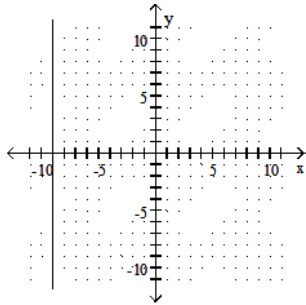
A)



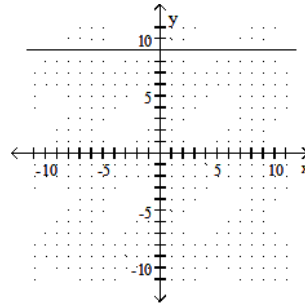
B)



C)

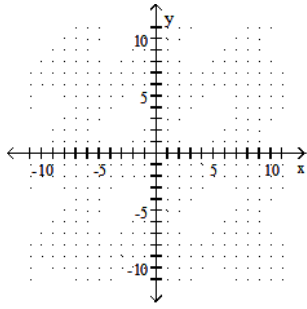


D)

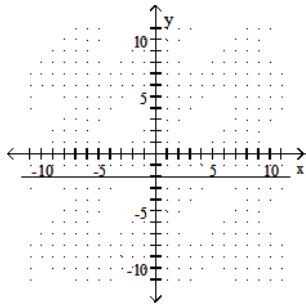


87) Passes through  $(5, -2)$  and  $m = 0$

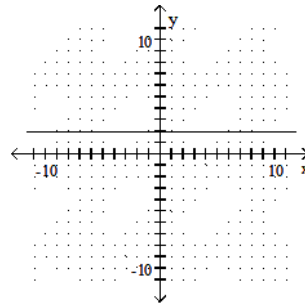
87) \_\_\_\_\_



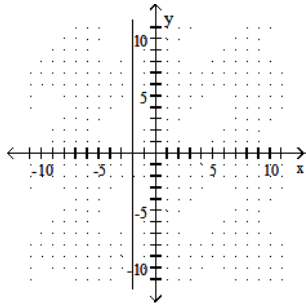
A)



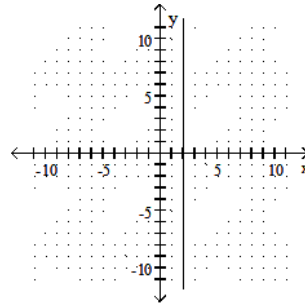
B)



C)

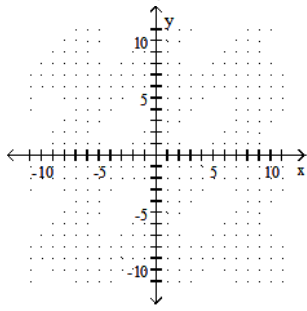


D)

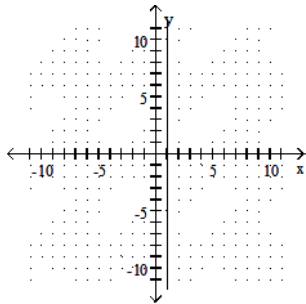


88) Passes through (1, 9) and the slope is undefined

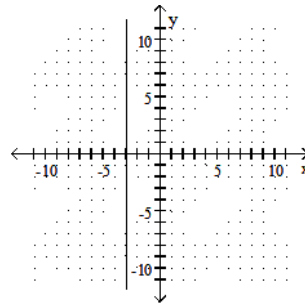
88) \_\_\_\_\_



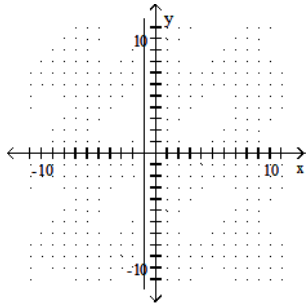
A)



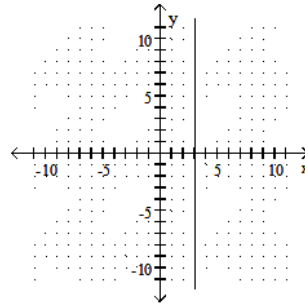
B)



C)



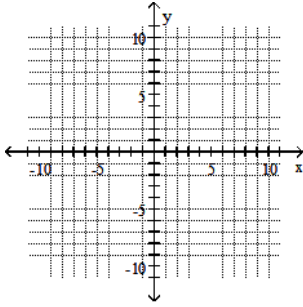
D)



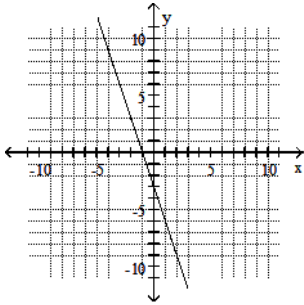
Graph the equation using the slope,  $m$ , and  $y$ -intercept.

89)  $y = 3x - 3$

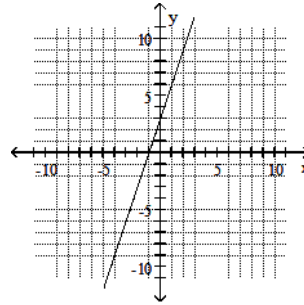
89) \_\_\_\_\_



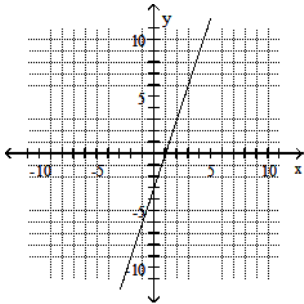
A)



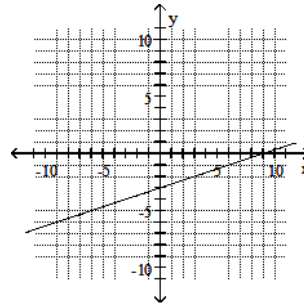
B)



C)

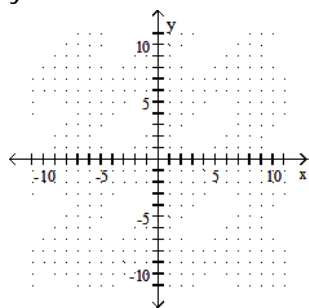


D)

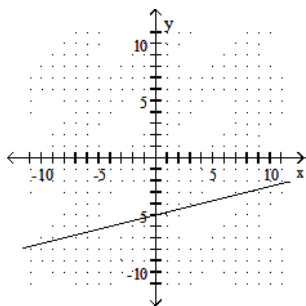


90)  $y = -4x + 5$

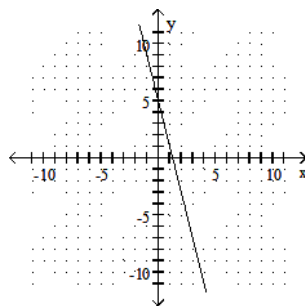
90) \_\_\_\_\_



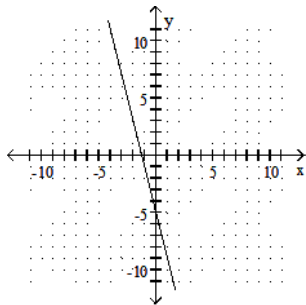
A)



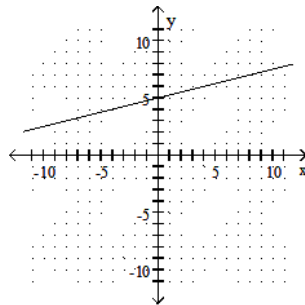
B)



C)



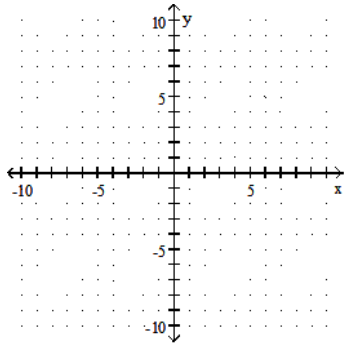
D)



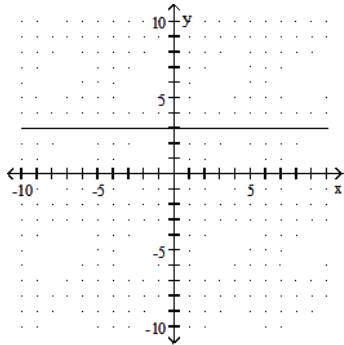


91)  $y = 3$

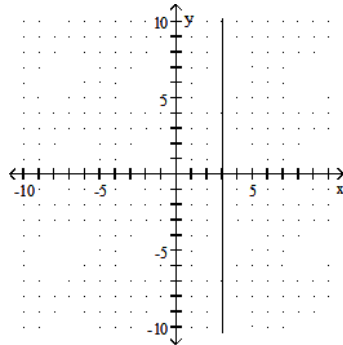
91) \_\_\_\_\_



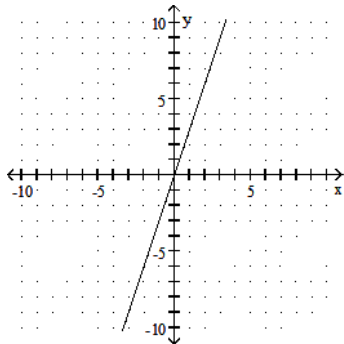
A)



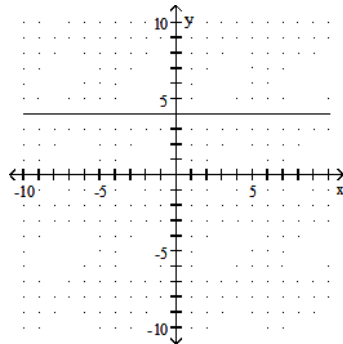
B)



C)



D)



92) Find the equation of the line passing through the point  $(-2, 5)$  and parallel to the line  $y = -2x - 3$ .

92) \_\_\_\_\_

- A)  $y = -2x + 3$
- B)  $y = 2x - 1$
- C)  $y = -2x + 1$
- D)  $y = -\frac{1}{2}x + 4$
- E) none of these

- 93) Find the equation of the line passing through the point (1, 3) and parallel to the line  $y = -5x + 2$ . 93) \_\_\_\_\_
- A)  $y = \frac{1}{5}x + \frac{14}{5}$   
 B)  $y - 3 = x - 1$   
 C)  $y = -5x + 3$   
 D)  $y = -5x + 8$   
 E) none of these

- 94) Find the equation of the vertical line passing through (-1, 2). 94) \_\_\_\_\_
- A)  $x = -1$   
 B)  $y = -1$   
 C)  $x = 2$   
 D)  $y = 2$   
 E) none of these

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

Find the equation for the line described.

- 95) the line through (1, 2) and (-2, 11) 95) \_\_\_\_\_
- 96) the line through (5, 2) and (-2, 2) 96) \_\_\_\_\_
- 97) the line that crosses the x-axis at  $x = 2$  and the y-axis at  $y = -4$  97) \_\_\_\_\_
- 98) the line having y-intercept (0, 5) and parallel to  $2x + y = 10$  98) \_\_\_\_\_
- 99) the line passing through (-2, -1) and having y-intercept (0, 3) 99) \_\_\_\_\_
- 100) the line having y-intercept (0, 2) and perpendicular to  $y = -4x + 20$  100) \_\_\_\_\_
- 101) the line perpendicular to  $3x + 2y = 5$  and passing through (1, 3) 101) \_\_\_\_\_
- 102) perpendicular to  $y = 2x + 5$  and passing through the point (3, 11). 102) \_\_\_\_\_
- 103) perpendicular to  $y = -\frac{3}{2}x + 2$  and passing through the point (0, 0). 103) \_\_\_\_\_
- 104) parallel to the y-axis with x-intercept of (-2, 0) 104) \_\_\_\_\_
- 105) parallel to the x-axis with y-intercept of (0, 5) 105) \_\_\_\_\_
- 106) the vertical line passing through the point (-3, 1) 106) \_\_\_\_\_
- 107) the horizontal line passing through the point (2, -3) 107) \_\_\_\_\_
- 108) the line passing through the point (1, -2) and having slope 3 108) \_\_\_\_\_

109) the line passing through the point (2, 3) and having slope -4

109) \_\_\_\_\_

110) the line passing through (2, 5) and having slope  $-\frac{2}{3}$

110) \_\_\_\_\_

111) Give an equation for the y-axis.

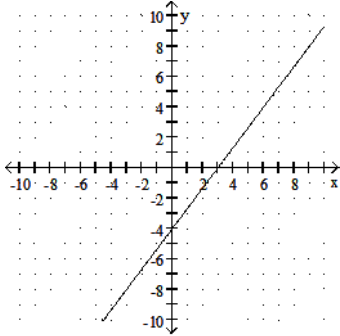
111) \_\_\_\_\_

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

Find the equation of the graph.

112)

112) \_\_\_\_\_



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

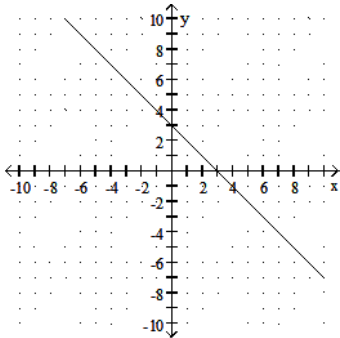
B)  $y = -3x - 4$

C)  $y = 3x - 4$

D)  $y = \frac{3}{4}x + 3$

113)

113) \_\_\_\_\_



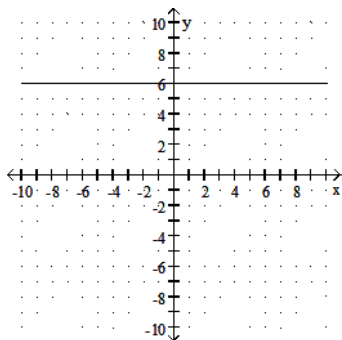
A)  $y = x - 3$

B)  $y = -x + 3$

C)  $y = -x - 3$

D)  $y = x + 3$

114)



114) \_\_\_\_\_

A)  $y = 6$

B)  $x = -6$

C)  $y = -6$

D)  $x = 6$

Find an equation of the line passing through the given point with the given slope,  $m$ .115)  $(4, 2)$ ;  $m = -5$ 

115) \_\_\_\_\_

A)  $y = -\frac{1}{5}x + 22$

B)  $y = -5x + \frac{1}{22}$

C)  $y = -5x + 22$

D)  $y = -5x - 22$

116)  $(-4, -10)$ ,  $m = 4$ 

116) \_\_\_\_\_

A)  $y = 4x + 16$

B)  $y = 4x + 6$

C)  $y = 4x - 16$

D)  $y = 4x - 6$

117)  $(-6, -2)$ ,  $m = \frac{1}{2}$ 

117) \_\_\_\_\_

A)  $y = -\frac{1}{2}x + 1$

B)  $y = 2x + 1$

C)  $y = \frac{1}{2}x + 1$

D)  $y = \frac{1}{2}x - 1$

118)  $(3, -4)$ ,  $m = \frac{2}{3}$ 

118) \_\_\_\_\_

A)  $y = \frac{2}{3}x - 6$

B)  $y = -\frac{2}{3}x + 6$

C)  $y = \frac{3}{2}x - 6$

D)  $y = \frac{2}{3}x + 6$

119)  $(0, 3)$ ;  $m = \frac{3}{5}$ 

119) \_\_\_\_\_

A)  $y = \frac{3}{5}x + 3$

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

C)  $y = -\frac{5}{3}x + \frac{1}{3}$

D)  $y = -\frac{3}{5}x + 3$

120)  $(0, 5)$ ;  $m = \frac{7}{9}$ 

120) \_\_\_\_\_

A)  $y = \frac{7}{9}x - 5$

B)  $y = \frac{7}{9}x + 5$

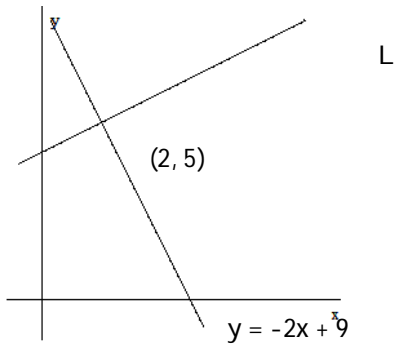
C)  $y = \frac{7}{9}x + \frac{1}{5}$

D)  $y = \frac{9}{7}x + 5$

Find the equation of the line L.

121)

121) \_\_\_\_\_



L perpendicular to  $y = -2x + 9$

A)  $y = -\frac{1}{2}x + 8$

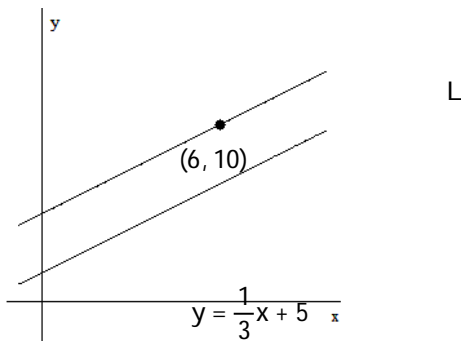
B)  $y = -\frac{1}{2}x - 4$

C)  $y = \frac{1}{2}x - 9$

D)  $y = \frac{1}{2}x + 4$

122)

122) \_\_\_\_\_



L parallel to  $y = \frac{1}{3}x + 5$

A)  $y = \frac{1}{3}x + 10$

B)  $y = \frac{1}{3}x + 2$

C)  $y = -3x + 8$

D)  $y = \frac{1}{3}x + 8$

123) Find the y-intercept of the line passing through the point  $(14, 12)$  and having slope  $\frac{2}{7}$ .

123) \_\_\_\_\_

A)  $(0, -4)$

B)  $(0, 12)$

C)  $(0, 8)$

D)  $\left(0, \frac{24}{7}\right)$

E) none of these

124) Find the value of  $a$  such that the three points  $(1, 3)$ ,  $(6, 5)$ , and  $(a, -1)$  lie on the same line.

124) \_\_\_\_\_

- A)  $-9$
- B)  $-\frac{1}{3}$
- C)  $-\frac{3}{5}$
- D)  $-10$
- E) none of these

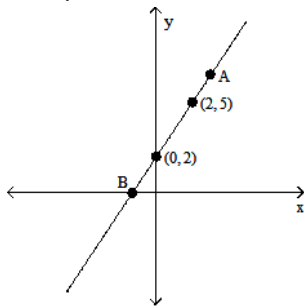
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

125) Find the  $x$ -intercept of the line passing through  $(1, 2)$  and having slope  $-4$ .

125) \_\_\_\_\_

126) Find the coordinates of points A and B if A has an  $x$ -coordinate of 3 and B is the  $x$ -intercept.

126) \_\_\_\_\_



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

Solve the problem.

127) Suppose a manufacturer finds that the cost  $y$  of producing  $x$  units is given by a formula of the form  $y = mx + b$ . If it costs \$1300 to produce 20 units and \$1750 to produce 35 units, what is the fixed cost?

127) \_\_\_\_\_

- A) \$2050
- B) \$700
- C) \$30
- D) \$450
- E) none of these

128) Suppose a manufacturer finds that the cost  $y$  of producing  $x$  units is given by a formula of the form  $y = mx + b$ . If it costs \$8200 to produce 20 units and \$14,500 to produce 50 units, what is the marginal cost?

128) \_\_\_\_\_

- A) \$210
- B) \$290
- C) \$4000
- D) \$410
- E) none of these

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

- 129) Suppose a manufacturer finds that the number of units  $x$  she produces and the cost  $y$  of producing  $x$  units are related by an equation of the form  $y = mx + b$ . If it costs \$2300 to produce 10 units and \$2450 to produce 15 units, what does it cost to produce 20 units? 129) \_\_\_\_\_
- 130) For a dial-up service between two cities, a telephone company charges 105 cents for the first minute and 55 cents for each additional minute (or fraction thereof). Write an equation such that  $y$ , the total cost of the call in cents, is expressed in terms of  $x$ , the length of the call in minutes for  $1 \leq x \leq 8$ . 130) \_\_\_\_\_
- 131) A game company has fixed costs of \$40,000 per year. Each game costs \$12.00 to produce and sells for \$18.00. How many games must the company produce and sell each year in order to make a profit of \$95,000? 131) \_\_\_\_\_
- 132) A salesman's weekly pay depends on his volume of sales. He earns \$80 each week in addition to \$10 for each item he sells.  
(a) Write an equation relating  $y$ , the salesman weekly pay, to  $x$ , the number of items he sells.  
(b) How many items must he sell for his pay to be \$300. 132) \_\_\_\_\_
- 133) The cost to run a TV factory depends on the number of items produced. The factory's fixed costs are \$10,000 each month in addition to \$120 for each TV produced.  
(a) Write an equation relating  $y$ , the factory's costs, to  $x$ , the number of TV's produced.  
(b) When will the factory's costs reach \$22,000? 133) \_\_\_\_\_
- 134) A water tank is being emptied such that the height  $y$  (in feet) of the water inside the tank decreases at a linear rate with time  $t$  measured in hours past 12:00 noon. If the height was 10 feet at 1:00 pm and 7.5 feet at 6:00 pm, find  
(a) the equation relating  $y$  to  $t$ ,  
(b) the height at 12:00 noon, and  
(c) the total time required to empty the tank. 134) \_\_\_\_\_

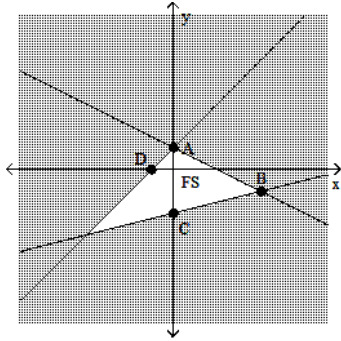
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 135) It costs \$700 to start up a business of selling hot dogs. Each hot dog costs \$.90 to produce. Let  $y$  be the cost in dollars of producing  $x$  hot dogs. Write the cost equation. 135) \_\_\_\_\_  
A)  $y = 90x + 700$       B)  $y = 700x + .90$       C)  $y = .90x - 700$       D)  $y = .90x + 700$
- 136) It costs \$500 to start up a business of selling hot dogs. Each hot dog costs \$.75 to produce. Let  $y$  be the cost in dollars of producing  $x$  hot dogs. What would be the cost to produce 400 hot dogs? 136) \_\_\_\_\_  
A) \$30,500      B) \$575      C) \$800      D) \$300
- 137) It costs \$500 to start up a business of selling hot dogs. Each hot dog costs \$.90 to produce. Let  $y$  be the cost in dollars of producing  $x$  hot dogs. How many hot dogs will be produced if total cost is \$2300? 137) \_\_\_\_\_  
A) 4000 hot dogs      B) 20 hot dogs      C) 200 hot dogs      D) 2000 hot dogs

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

138) Find a system of inequalities that has the following feasible set.

138) \_\_\_\_\_



$$A = (0, 1), B = (4, -1), C = (0, -2), D = (-1, 0)$$

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

Write an inequality whose graph has the following properties.

139) Contains the points on or above the line with slope 5 and y-intercept (0, -3)

139) \_\_\_\_\_

A)  $y \leq 5x + 3$

B)  $y \geq -3x + 5$

C)  $y \leq 5x - 3$

D)  $y \geq 5x - 3$

140) Contains the points on or above the straight line passing through the points (3, 1) and (5, 15)

140) \_\_\_\_\_

A)  $y \leq 7x - 20$

B)  $y \geq 7x + 22$

C)  $y \geq 7x - 20$

D)  $y \leq 7x + 20$

141) Find the point of intersection of the two lines  $x + 3y = 1$  and  $x - 3y = 5$ .

141) \_\_\_\_\_

A)  $\left\{ \frac{1}{2}, \frac{1}{2} \right\}$

B)  $\left\{ \frac{2}{3}, 3 \right\}$

C)  $\left\{ 3, -\frac{2}{3} \right\}$

D)  $\left\{ 3, \frac{1}{2} \right\}$

E) none of these

142) Find the point of intersection of the two lines  $x - y = 1$  and  $x + 2y = 2$ .

142) \_\_\_\_\_

A) (2, 1)

B)  $\left\{ \frac{4}{3}, 0 \right\}$

C)  $\left\{ \frac{4}{3}, \frac{1}{3} \right\}$

D)  $\left\{ 1, \frac{1}{2} \right\}$

E) none of these



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

143) Find the point of intersection of the two lines  $x + 4y = 6$  and  $x - 4y = 2$ . 143) \_\_\_\_\_

144) Find the point of intersection of the two lines  $2x + y = 5$  and  $y = x - 1$ . 144) \_\_\_\_\_

145) Find the point of intersection of the two lines  $x + 3y = 6$  and  $x - y = 2$ . 145) \_\_\_\_\_

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

Find the point of intersection of the given pair of straight lines.

146)  $x + y = 15$  146) \_\_\_\_\_  
 $x - y = -1$   
A) (7, 8) B) No solution C) (6, 9) D) (-7, 9)

147)  $4x - y = 17$  147) \_\_\_\_\_  
 $5x + y = 28$   
A) (5, 3) B) (3, 5) C) No solution D) (5, 4)

148)  $x - y = -2$  148) \_\_\_\_\_  
 $x = 3y$   
A) (-1, -3) B) (-3, -1) C) (1, 3) D) (-1, 3)

149)  $x + 2y = -4$  149) \_\_\_\_\_  
 $y = 3$   
A) (2, 3) B) (2, -3) C) (3, -10) D) (-10, 3)

Solve the problem.

150) Does (0, -4) satisfy the following system? 150) \_\_\_\_\_  
 $\begin{cases} y = 2x - 4 \\ 2y = 7x - 8 \end{cases}$   
A) Yes B) No

151) Does (3, 4) satisfy the following system? 151) \_\_\_\_\_  
 $\begin{cases} y = x + 1 \\ y = 7x - 6 \end{cases}$   
A) Yes B) No

Decide if the given point satisfies the system of linear equations.

152)  $\begin{cases} x + y = 1 \\ x - y = 3 \end{cases}$  152) \_\_\_\_\_  
(2, -1)  
A) Yes B) No

153)  $\begin{cases} x + y = 11 \\ x - y = -1 \end{cases}$  153) \_\_\_\_\_  
(-5, 6)  
A) Yes B) No

$$154) \begin{cases} 2x + y = -3 \\ 4x + 2y = -6 \end{cases}$$

(-3, -3)  
A) Yes

154) \_\_\_\_\_

B) No

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

Solve the system of linear equations.

$$155) \begin{cases} y = 5x - 3 \\ y = -3x - 11 \end{cases}$$

155) \_\_\_\_\_

$$156) \begin{cases} 5x - 3y = 12 \\ x = 3 \end{cases}$$

156) \_\_\_\_\_

$$157) \begin{cases} 4x + 3y = 380 \\ 2x + 5y = 330 \end{cases}$$

157) \_\_\_\_\_

$$158) \begin{cases} 2x + 2y = 1 \\ 3x - y = 6 \end{cases}$$

158) \_\_\_\_\_

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

159) If two lines intersect in more than one point, then they are

159) \_\_\_\_\_

- A) parallel.
- B) inconsistent.
- C) the same.
- D) unique.
- E) none of these.

Solve the system of linear equations.

$$160) \begin{cases} x + 4y = -1 \\ -5x + 3y = -18 \end{cases}$$

A) (-3, 0)

B) (3, -1)

C) No solution

D) (2, 0)

160) \_\_\_\_\_

$$161) \begin{cases} x + 4y = 28 \\ -6x + 5y = 35 \end{cases}$$

A) No solution

B) (0, 7)

C) (1, 6)

D) (-7, 0)

161) \_\_\_\_\_

$$162) \begin{cases} 7x + 9y = 109 \\ 4x + 3y = 43 \end{cases}$$

A) No solution

B) (3, 10)

C) (4, 9)

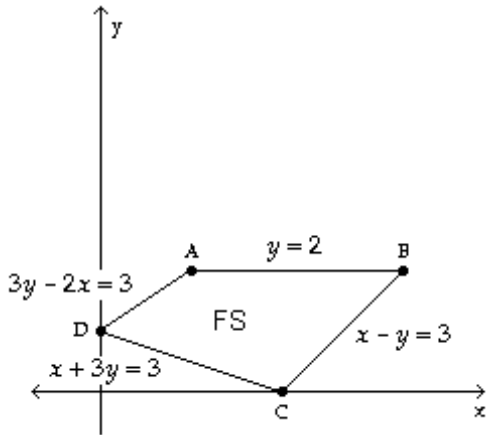
D) (4, 10)

162) \_\_\_\_\_

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

163) Find the coordinates of the vertices of the feasible set shown below.

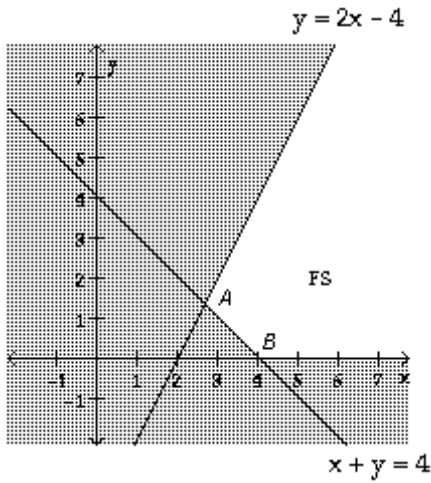
163) \_\_\_\_\_



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

164) Consider the feasible set, FS, shown below. Find the coordinates of vertex A.

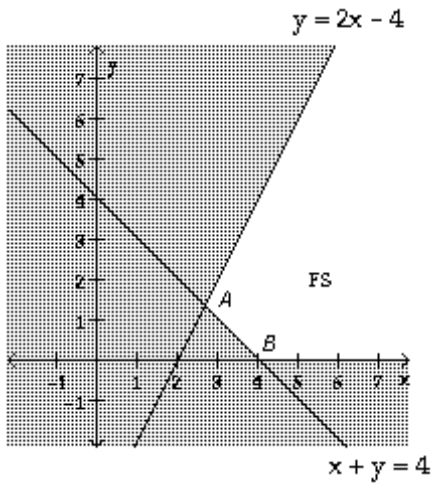
164) \_\_\_\_\_



- A)  $\left(\frac{8}{3}, \frac{4}{3}\right)$
- B)  $(2, 2)$
- C)  $\left(2, \frac{4}{3}\right)$
- D)  $\left(\frac{8}{3}, 1\right)$
- E) none of these

165) Consider the feasible set, FS, shown below. Find the coordinates of the vertex B.

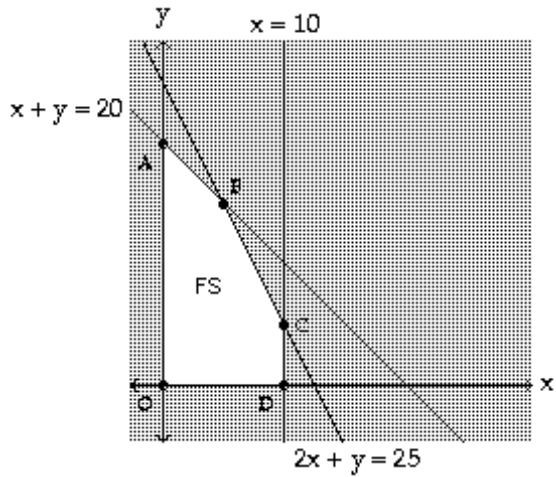
165) \_\_\_\_\_



- A) (4, 0)
- B) (2, 0)
- C) (0, 4)
- D) (0, 2)
- E) none of these

166) Consider the feasible set, FS, shown below. Find the coordinates of the vertex B.

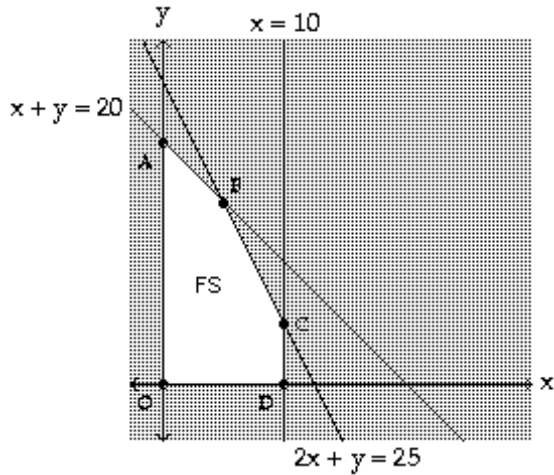
166) \_\_\_\_\_



- A) (5, 15)
- B) (10, 10)
- C) (0, 20)
- D) (10, 6)
- E) none of these

167) Consider the feasible set, FS, shown below. Which of the following is a valid coordinate in the feasible set?

167) \_\_\_\_\_



- A) (5, 16)
- B) (3, 10)
- C) (10, 7)
- D) (11, 11)
- E) none of these

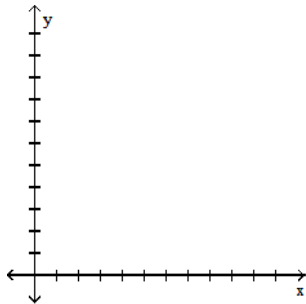
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

168) Consider the following system of linear inequalities.

168) \_\_\_\_\_

$$\begin{cases} 5x + y \leq 100 \\ 5x + 9y \leq 180 \\ x + y \geq 5 \\ x \geq 0, y \geq 0 \end{cases}$$

- (a) Graph the feasible set determined by the system.
- (b) Find the coordinates of all of the vertices of the feasible set.

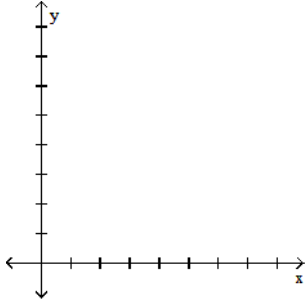


169) Consider the following system of linear inequalities:

$$\begin{cases} 2x + 3y \leq 9 \\ x + y \leq 4 \\ x \geq 0, y \geq 0 \end{cases}$$

169) \_\_\_\_\_

- (a) Graph the feasible set of the system.  
(b) Find the coordinates of vertices of the feasible set.



Graph the feasible set of the system of linear inequalities. Shade the region which consists of points that do not belong to the feasible set.

170)  $\begin{cases} y \leq 2x - 3 \\ y \geq 0 \end{cases}$

170) \_\_\_\_\_

171)  $\begin{cases} x + 2y \geq 4 \\ 2x - y \geq 6 \end{cases}$

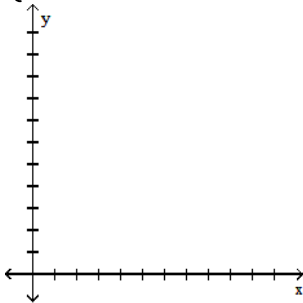
171) \_\_\_\_\_

172)  $\begin{cases} y \leq 2x + 5 \\ y \geq x \end{cases}$

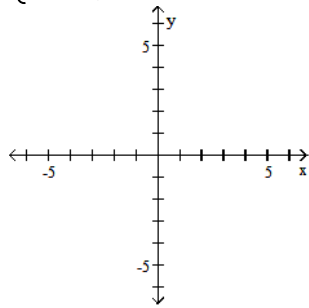
172) \_\_\_\_\_

173)  $\begin{cases} 2x + 3y \leq 9 \\ x + y \leq 4 \\ x \geq 1, y \geq 0 \end{cases}$

173) \_\_\_\_\_

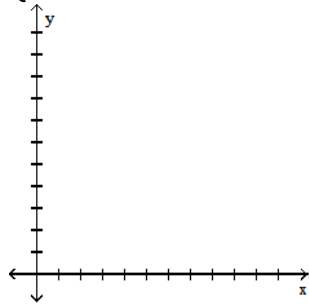


$$174) \begin{cases} x + 3y \leq 6 \\ x - y \leq 2 \\ -5x + y \leq 2 \end{cases}$$



174) \_\_\_\_\_

$$175) \begin{cases} x + y \geq 6 \\ 3x - 2y \geq 4 \\ y \geq 0, y \leq 10 \end{cases}$$



175) \_\_\_\_\_

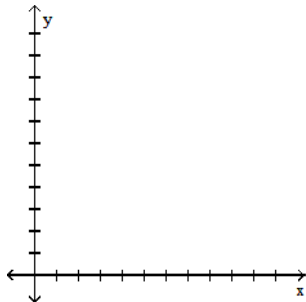
176) Explain why  $\begin{cases} x + 2y \leq 12 \\ y \geq 7 \\ x \geq 0, y \geq 0 \end{cases}$  has no solution.

176) \_\_\_\_\_

Solve the problem.

177) Suppose that the supply and demand equations of a certain commodity are given by  $q = 5p - 15$  and  $q = -2.5p + 30$  respectively, where  $p$  is the unit price of the commodity in dollars and  $q$  is the quantity. 177) \_\_\_\_\_

- (a) What is the supply when the price is \$8?
- (b) What is the demand when the price is \$8?
- (c) Find the equilibrium price and the corresponding number of units supplied and demanded.
- (d) Draw the graphs of the supply and demand equations on the same set of axes.
- (e) Find where the two lines cross the horizontal axis and give an economic interpretation of these points.



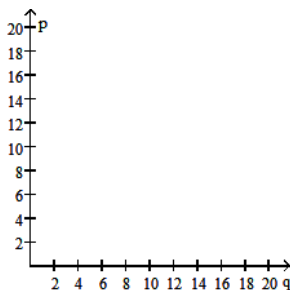
178) Suppose that the supply and demand equations of a new CD at a store are given by  $q = 3p - 12$  and  $q = -2p + 23$  respectively, where  $p$  is the unit price of the CD's in dollars and  $q$  is the quantity. 178) \_\_\_\_\_

- (a) What is the supply when the price is \$10?
- (b) What is the demand when the price is \$10?
- (c) Find the equilibrium price and the corresponding number of units supplied and demanded.
- (d) Find where the two lines cross the horizontal axis and give an economic interpretation of these points.

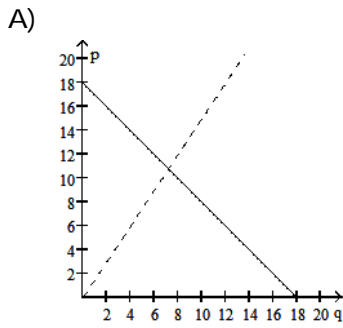
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

179) Let the supply and demand equations for a certain model of electric pencil sharpener be given by  $p = \frac{2}{3}q$  and  $p = 18 - \frac{2}{3}q$ , 179) \_\_\_\_\_

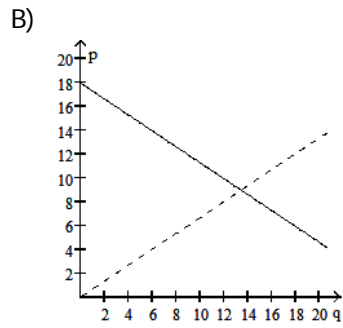
where  $p$  is the price in dollars and  $q$  is the quantity of pencil sharpeners (in hundreds). Graph these equations on the same axes (graph the supply equation as a dashed line and the demand equation as a solid line). Also, find the equilibrium quantity and the equilibrium price.



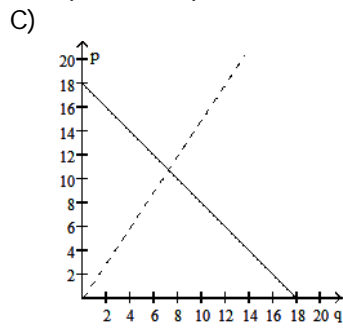




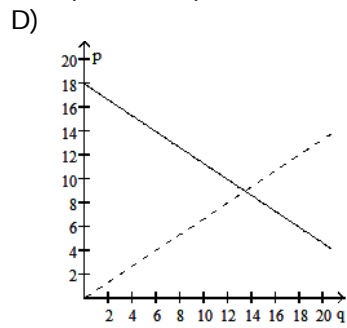
Equilibrium quantity: 720  
Equilibrium price: \$10.80



Equilibrium quantity: 1350  
Equilibrium price: \$9



Equilibrium quantity: 1080  
Equilibrium price: \$7.20



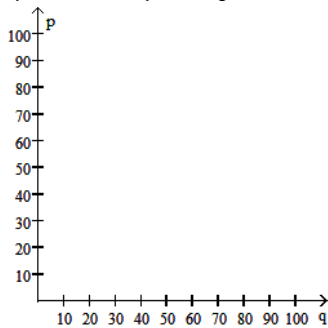
Equilibrium quantity: 950  
Equilibrium price: \$7

180) Let the supply and demand equations for raspberry-flavored licorice be given by

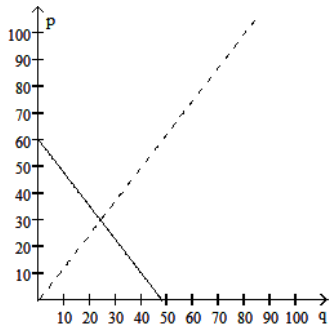
$$p = \frac{5}{4}q \quad \text{and} \quad p = 60 - \frac{3}{4}q,$$

180) \_\_\_\_\_

where  $p$  is the price in dollars and  $q$  is the number of batches. Graph these equations on the same axes (graph the supply equation as a dashed line and the demand equation as a solid line). Also, find the equilibrium quantity and the equilibrium price.

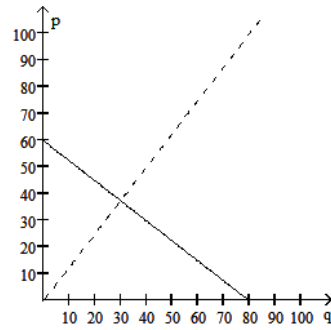


A)



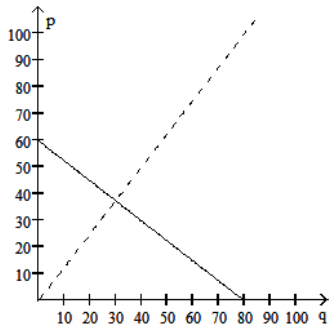
Equilibrium quantity: 30.00  
Equilibrium price: \$24

B)



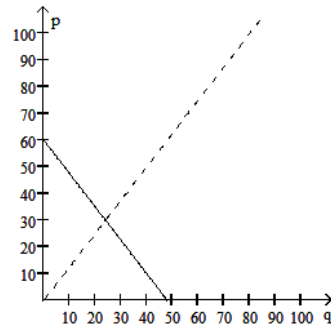
Equilibrium quantity: 30  
Equilibrium price: \$37.50

C)



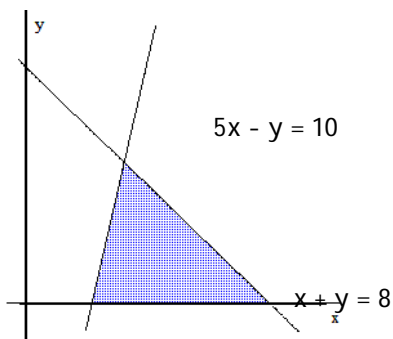
Equilibrium quantity: 37.50  
Equilibrium price: \$30

D)



Equilibrium quantity: 24  
Equilibrium price: \$30.00

181) Find the area of the shaded triangle. Note it has its base on one of the axes. The area of a triangle is one-half, times its altitude, times the length of its base. 181) \_\_\_\_\_



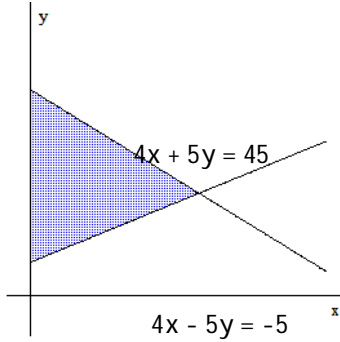
A) 8 sq. units

B) 30 sq. units

C) 5 sq. units

D) 15 sq. units

182) Find the area of the shaded triangle. Note it has its base on one of the axes. The area of a triangle is one-half, times its altitude, times the length of its base. 182) \_\_\_\_\_



- A) 21 sq. units      B) 80 sq. units      C) 20 sq. units      D) 40 sq. units

183) A plane flying with a tailwind flew at a speed of 470 mph, relative to the ground. When flying against the tailwind, it flew at a speed of 330 mph. Express these relationships as equations. Let  $x$  represent the speed of the plane in calm air and let  $y$  represent the speed of the wind. 183) \_\_\_\_\_

- A)  $x + y = 330$       B)  $x + y = 330$       C)  $x + y = 470$       D)  $x + y = 470$   
 $x - y = 470$        $y = 470$        $x - y = 330$        $y = 330$

184) A young married couple had a combined annual income of \$43,000. If the wife made \$3000 more than the husband, write these relationships as a system of equations. Let  $x$  represent the husband's income and let  $y$  represent the wife's income. 184) \_\_\_\_\_

- A)  $x + y = 3000$       B)  $x + y = 43,000$       C)  $x - y = 43,000$       D)  $x + y = 43,000$   
 $y = x + 43,000$        $y = 3000$        $y = x + 3000$        $y = x + 3000$

185) Mark the electrician charges \$120 for a house call, and then \$25 per hour for labor. Sara the electrician charges \$95 for a house call, and then \$45 per hour for labor. Write a cost equation for each electrician, where  $y$  is the total cost of the electrical work and  $x$  is the number of hours of labor. 185) \_\_\_\_\_

- A) Mark:  $y = 45x + 95$       B) Mark:  $y = 25x + 120$   
Sara:  $y = 25x + 120$       Sara:  $y = 45x + 95$   
C) Mark:  $y = 95x + 45$       D) Mark:  $y = 120x + 25$   
Sara:  $y = 120x + 25$       Sara:  $y = 95x + 45$

186) Two plumbers make house calls. One charges \$85 for a visit plus \$40 per hour of work. The other charges \$65 per visit plus \$50 per hour of work. For how many hours of work do the two plumbers charge the same? 186) \_\_\_\_\_

- A) 2 hr      B) 2.5 hr      C) 1 hr      D) 1.5 hr

187) Chris and Mary are selling tickets at their class play. Chris is selling student tickets for \$1.00 each, and Mary selling adult tickets for \$6.50 each. If their total income for 26 tickets was \$64.50, how many tickets did Chris sell? 187) \_\_\_\_\_

- A) 7 tickets      B) 12 tickets      C) 19 tickets      D) 21 tickets

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

188) Determine the least-square error when the line  $y = \frac{11}{10}x + 3$  is used to approximate the data points (1, 3), (2, 6), (3, 8) and (4, 6). 188) \_\_\_\_\_

189) Determine the least-square error when the line  $y = 2x + 2.5$  is used to approximate the data points (1, 5), (3, 8) and (6, 15). 189) \_\_\_\_\_

190) Find the least-squares line for the data points (3, 6), (1, 9), (4, 3) and (2, 8). 190) \_\_\_\_\_

191) Find the least-squares line for the data points (1, 5), (3, 8) and (6, 15). 191) \_\_\_\_\_

192) Find the least-squares line for the data points (a - 1, b), (a, b + c + 1), and (a + 1, b + c - 1). 192) \_\_\_\_\_

Solve the problem.

193) The following table gives the revenue of a company over several years. 193) \_\_\_\_\_

Years (after 1990)	Dollars (in millions)
0	12.6
1	13.9
2	14.1
3	15.4
4	16.2

- (a) Find the least-squares line for this data.
- (b) Use the least-squares line to predict the revenues for the year 2000.

194) The following table gives the amount of carbon dioxide being released into the atmosphere a certain foreign country. 194) \_\_\_\_\_

Years (after 2000)	Carbon Dioxide (tons)
0	17
1	19.4
2	21.3
3	23
4	25.5

- (a) Find the least-squares line for this data.
- (b) If the trend continues, when will the number of tons reach 28?

195) The following table gives the amount (in millions of tons) of paper and paperboard waste generated in the United States for certain years. 195) \_\_\_\_\_

Year	Waste
1960	29.9
1965	38.0
1970	44.2
1975	43.0
1980	54.7
1985	61.5
1990	73.3
1993	77.8

- (a) Use the method of least squares to obtain the straight line that best fits these data. Let  $x$  number of years after 1960. Round answer to the nearest hundredth  
 (b) If the trend determined by the straight line continues, then when will the amount of paper waste exceed 100 million tons?

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

196) The paired data below consist of the test scores of 6 randomly selected students and the number of hours they studied for the test. Use the equation of the least squares line to predict the score on the test of a student who studies 3 hours. 196) \_\_\_\_\_

Hours (x)	5	10	4	6	10	9
Score (y)	64	86	69	86	59	87

- A) 75.5                                      B) 65.5                                      C) 71.8                                      D) 70.5

197) The paired data below consist of the costs of advertising (in thousands of dollars) and the number of products sold (in thousands). Use the equation of the least squares line to predict the number of products sold if the cost of advertising is \$9000. 197) \_\_\_\_\_

Cost (x)	9	2	3	4	2	5	9	10
Number (y)	85	52	55	68	67	86	83	73

- A) 25,165.8 products sold                                      B) 77.91 products sold  
 C) 80.91 products sold                                      D) 87.61 products sold

198) The paired data below consist of the temperatures on randomly chosen days and the amount a certain kind of plant grew (in millimeters). Use the equation of the least squares line to predict the growth of a plant if the temperature is 61. 198) \_\_\_\_\_

Temp (x)	62	76	50	51	71	46	51	44	79
Growth (y)	36	39	50	13	33	33	17	6	16

- A) 26.19 mm                                      B) 28.45 mm                                      C) 27.96 mm                                      D) 27.47 mm

199) A study was conducted to compare the average time spent in the lab each week versus course grade for computer students. The results are recorded in the table below. Use the equation of the least squares line to predict the grade of a student who spends 14 hours in the lab.

199) \_\_\_\_\_

<u>Number of hours spent in lab (x)</u>	<u>Grade (percent) (y)</u>
10	96
11	51
16	62
9	58
7	89
15	81
16	46
10	51

A) 65.4%

B) 58.6%

C) 74.6%

D) 62.6%

## Answer Key

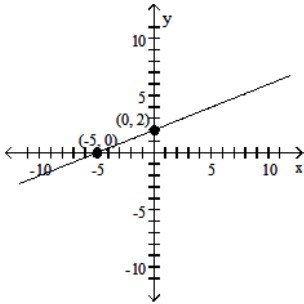
Testname: UNTITLED1

- 1) D
- 2) B
- 3) C
- 4) D
- 5) C
- 6) A
- 7) C
- 8) D
- 9) D
- 10) D
- 11) B
- 12) C
- 13) (4, 3)
- 14) A
- 15) A
- 16) A
- 17) B
- 18) B
- 19) B
- 20) B
- 21) D
- 22) B
- 23) B
- 24)  $y = -\frac{1}{3}x + \frac{1}{3}$
- 25)  $y = 2x + \frac{5}{2}$
- 26) C
- 27) C
- 28) D
- 29) C
- 30) B
- 31) A
- 32) B
- 33) A
- 34) C
- 35) A
- 36) x-intercept: (3, 0)  
y-intercept: (0, 6)
- 37) x-intercept: none  
y-intercept: (0, 2)
- 38) x-intercept: (-3, 0)  
y-intercept: none
- 39) x-intercept: (0, 0)  
y-intercept: (0, 0)
- 40) C
- 41) C
- 42) D
- 43) A

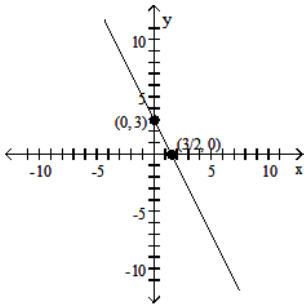
Answer Key

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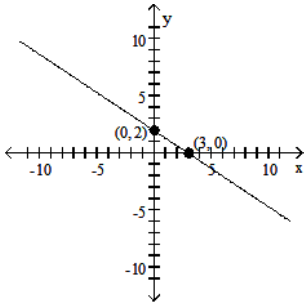
44)



45)



46)

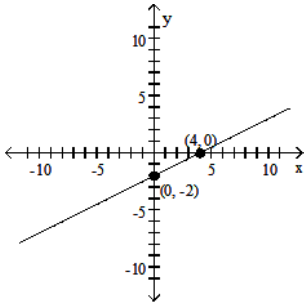




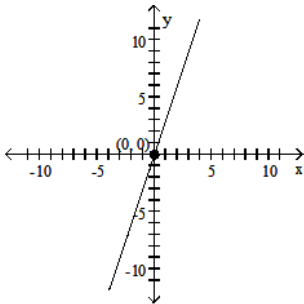
Answer Key

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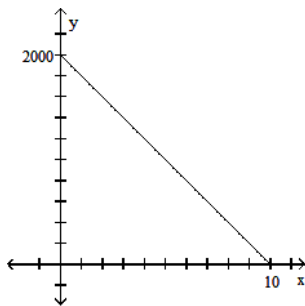
47)



48)



- 49) D
- 50) B
- 51) D
- 52) C
- 53) D
- 54) C
- 55) B
- 56) (a)

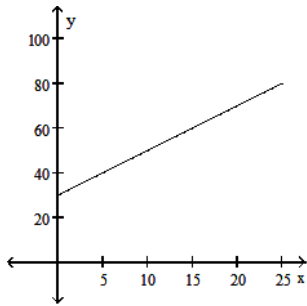


- (b) \$1000
- (c) the value of the machine when it is new
- (d) 8 years

Answer Key

Testname: UNTITLED1

57) (a)



(b) \$60

(c) 10 miles

- 58) D
- 59) C
- 60) C
- 61) A
- 62) C
- 63) C
- 64) C
- 65) C
- 66) D
- 67) A
- 68) B
- 69) B
- 70) A
- 71) A
- 72) A
- 73) C
- 74) C
- 75) D
- 76) C
- 77) B
- 78) D
- 79) B
- 80) C
- 81) D
- 82) C
- 83) D
- 84) D
- 85) D
- 86) D
- 87) A
- 88) A
- 89) C
- 90) B
- 91) A
- 92) C

## Answer Key

Testname: UNTITLED1

93) D

94) A

95)  $y = -3x + 5$

96)  $y = 2$

97)  $y = 2x - 4$

98)  $y = -2x + 5$

99)  $y = 2x + 3$

100)  $y = \frac{1}{4}x + 2$

101)  $y = \frac{2}{3}x + \frac{7}{3}$

102)  $y = -\frac{1}{2}x + \frac{25}{2}$

103)  $y = \frac{2}{3}x$

104)  $x = -2$

105)  $y = 5$

106)  $x = -3$

107)  $y = -3$

108)  $y = 3x - 5$

109)  $y = -4x + 11$

110)  $y = -\frac{2}{3}x + \frac{19}{3}$

111)  $x = 0$

112) A

113) B

114) A

115) C

116) B

117) C

118) A

119) A

120) B

121) D

122) D

123) C

124) A

125)  $\left(\frac{3}{2}, 0\right)$

126) A:  $\left(3, \frac{13}{2}\right)$ , B:  $\left(-\frac{4}{3}, 0\right)$

127) B

128) A

129) \$2600

130)  $y = 55x + 50$

131) 22,500 games

132) (a)  $y = 10x + 80$

(b) 22

Answer Key

Testname: UNTITLED1

133) (a)  $y = 120x + 10,000$

(b) 100

134) (a)  $y = -1.5t + 16.5$

(b) 16.5 feet

(c) 11 hours

135) D

136) C

137) D

138) 
$$\begin{cases} y \leq -\frac{1}{2}x + 1 \\ y \leq x + 1 \\ y \geq \frac{1}{4}x - 2 \end{cases}$$

139) D

140) C

141) C

142) C

143)  $\left(4, \frac{1}{2}\right)$

144) (2, 1)

145) (3, 1)

146) A

147) A

148) B

149) D

150) A

151) B

152) A

153) B

154) B

155) (-1, -8)

156) (3, 1)

157) (65, 40)

158)  $\left(\frac{13}{8}, -\frac{9}{8}\right)$

159) C

160) B

161) B

162) C

163)  $A = \left(\frac{3}{2}, 2\right)$ , B = (5, 2), C = (3, 0), D = (0, 1)

164) A

165) A

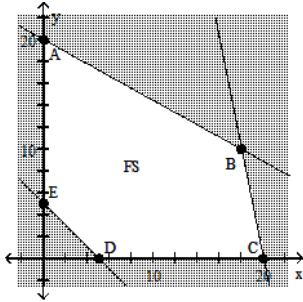
166) A

167) B

Answer Key

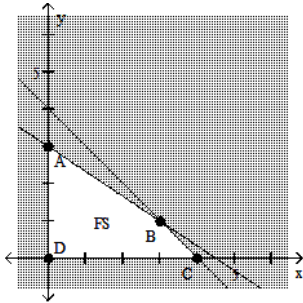
Testname: UNTITLED1

168) (a)



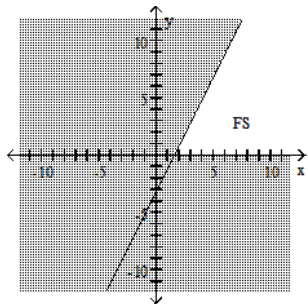
(b) A: (0, 20), B: (18, 10), C: (20, 0), D: (5, 0), E: (0, 5)

169) (a)



(b) A: (4, 0), B: (0, 3), C: (4, 0), D: (0, 0)

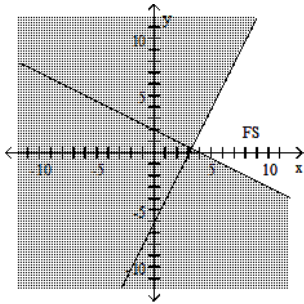
170)



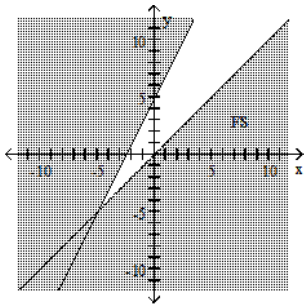
Answer Key

Testname: UNTITLED1

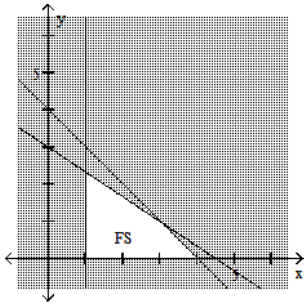
171)



172)



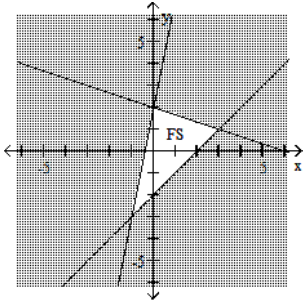
173)



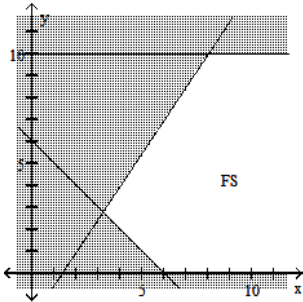
Answer Key

Testname: UNTITLED1

174)



175)



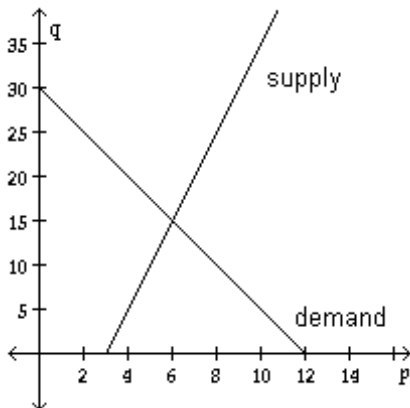
176) If  $x, y$  satisfy  $x \geq 0, x + 2y \leq 12$ , then the largest possible value for  $y$  is 6. Thus  $y$  does not satisfy  $y \geq 7$ .

177) (a) 25

(b) 10

(c) (6, 15); The equilibrium price is \$6 when 15 units are supplied and demanded.

(d)



(e) (3, 0), (12, 0)

Economic interpretation: The intersection of the supply curve with the horizontal axis indicates the lowest price at which manufacturer is willing to sell the product or service. The intersection of the demand curve with the horizontal axis is the price a consumer is willing to pay for a product or service.

## Answer Key

Testname: UNTITLED1

- 178) (a) 18  
(b) 3  
(c) (7, 9); The equilibrium price is \$7 when 9 units are supplied and demanded.  
(d)  $(4, 0), \left(\frac{23}{2}, 0\right)$

Economic interpretation: The intersection of the supply curve with the horizontal axis indicates the lowest price at which store is willing to sell the CD's. The intersection of the demand curve with the horizontal axis is the highest price a consumer is willing to pay for the CD.

179) B

180) B

181) D

182) C

183) C

184) D

185) B

186) A

187) C

188) 6.70

189) 0.75

190)  $y = -2x + \frac{23}{2}$

191)  $y = \frac{77}{38}x + \frac{49}{19}$

192)  $y = \left(\frac{c-1}{2}\right)x + \left(\frac{1}{2}a + b + \frac{2}{3}c - \frac{1}{2}ac\right)$

193) (a)  $y = 0.87x + 12.7$

(b) \$21.4 million

194) (a)  $y = 2.06x + 17.12$

(b) 2005

195) (a)  $y = 1.41x + 28.45$

(b) 2012

196) D

197) C

198) D

199) D