

Do the following problems as indicated.

Complete the ordered pair so that it is a solution of the given linear equation.

1)  $2x + y = 3$        $(-3, \quad), (0, \quad), (1, \quad)$

Find the slope of the line that goes through the given points.

2)  $(7, -1)$  and  $(-8, 9)$

3)  $(5, 6)$  and  $(7, 9)$

4)  $(8, 0)$ ,  $(0, 6)$

5)  $(-9, -4)$  and  $(8, -11)$

Determine the slope and the y-intercept of the graph of the equation.

6)  $6x - 4y = 24$

7)  $9x + y = -12$

Determine whether the lines through the pairs of points are parallel, perpendicular, or neither.

8)  $3x - 2y = -5$   
 $2x + 3y = -15$

9)  $6x + 2y = 8$   
 $21x + 7y = 30$

10)  $4x - 4y = 3$   
 $16x + 6y = -5$

Graph the linear equation.

11)  $-6x - 12y = 24$

12)  $y = 4x - 6$

13)  $3x - 9y = 18$

14)  $x = -4$

Graph the linear equation.

15)  $6x - 18y = 0$

16)  $y = 3x$

17)  $y + 4 = 0$

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

19)  $7x + 2y = 14$

20)  $7y = 3x$

Graph the inequality.

21)  $3x + 4y \leq 12$

22)  $x > -4$

23)  $4x + y > -8$

24)  $y \geq -5x$

Graph the solution of the system of linear inequalities.

25) 
$$\begin{cases} y < 3x + 7 \\ y \geq x - 8 \end{cases}$$

26) 
$$\begin{cases} x \geq 2 \\ 3x + 2y \leq -4 \end{cases}$$

27) 
$$\begin{cases} x \geq 2y \\ x + 2y \leq 5 \end{cases}$$

28) 
$$\begin{cases} y + 5x \geq -5 \\ 3x - 2y \leq 20 \end{cases}$$

Find an equation of the line through the given points.

Write the equation in standard form.

29) Through  $(-2, -4)$  and  $(3, -8)$

30) Slope  $\frac{7}{3}$ ; y-intercept  $(0, -4)$

31) Slope  $-\frac{3}{8}$ ; through  $(5, 3)$

32) Horizontal line through  $(6, 10)$

33) Perpendicular to  $y = 9$ , through  $(-9, 12)$

34) Perpendicular to  $x = 6$ , through  $(-6, 5)$

35) Parallel to  $x = 9$ , through  $(-4, -5)$

Without graphing, determine whether the system has one solution, no solution, or an infinite number of solutions.

36) 
$$\begin{cases} 3x + y = -4 \\ 4x + 6y = 18 \end{cases}$$

37) 
$$\begin{cases} y - 4x = 5 \\ 2y = 8x + 10 \end{cases}$$

38) 
$$\begin{cases} x + 5y = 30 \\ y = -\frac{1}{5}x + 6 \end{cases}$$

Solve the system of equations.

39) 
$$\begin{cases} -5x + 4y = -171 \\ x = -3y \end{cases}$$

40) 
$$\begin{cases} 3x + y = 14 \\ 12x + 4y = 56 \end{cases}$$

41) 
$$\begin{cases} x + y = 2 \\ x - y = -14 \end{cases}$$

42) 
$$\begin{cases} -2x - 5y = 0 \\ -7x - 3y = -29 \end{cases}$$

43) 
$$\begin{cases} x + 9y = 63 \\ -2x + 8y = 30 \end{cases}$$

44) 
$$\begin{cases} 2x - 3y = 4 \\ 3x - 2y = 4 \end{cases}$$

45) 
$$\begin{cases} x - 5y = -43 \\ 2x - 5y = -41 \end{cases}$$

Evaluate the function.

46) Find  $f(-2)$  when  $f(x) = x^2 - 3x + 2$ .

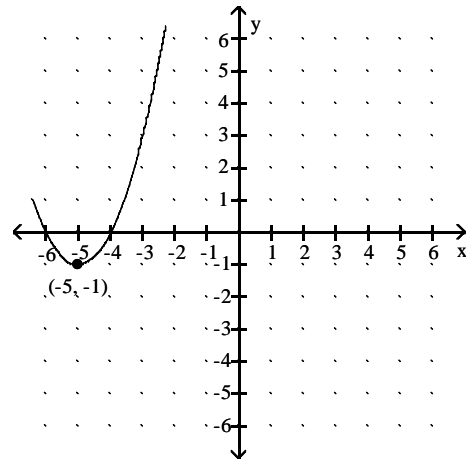
47) Find  $f(0)$  when  $f(x) = x^2 - 5x - 7$ .

48) Find  $f(9)$  when  $f(x) = 5x - 2$

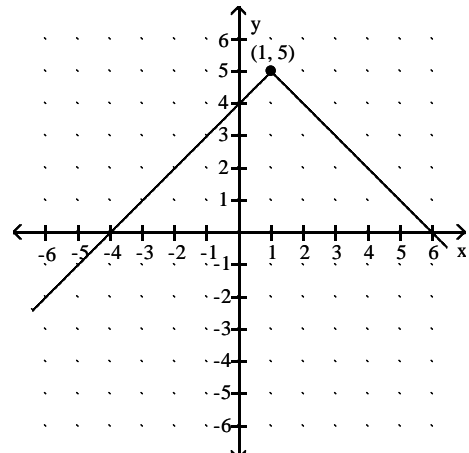
49) Find  $f(3)$  when  $f(x) = 4x^2 - 4x - 3$ .

Find the domain and range of the function graphed.

50)

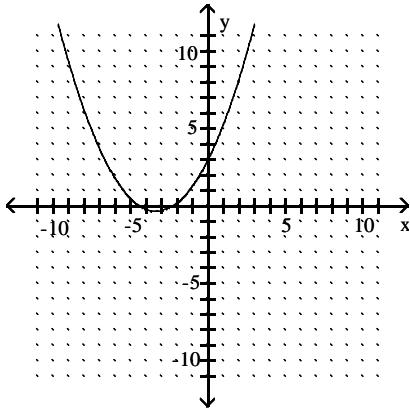


51)

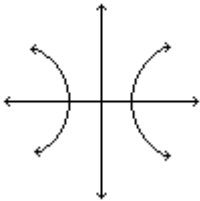


Use the vertical line test to determine whether the graph is the graph of a function.

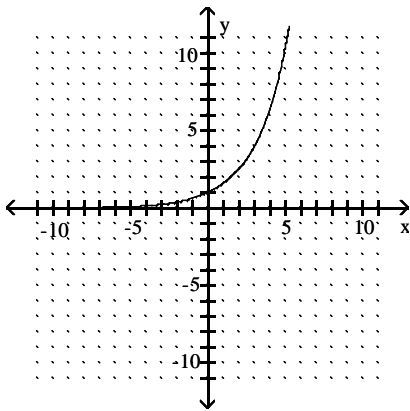
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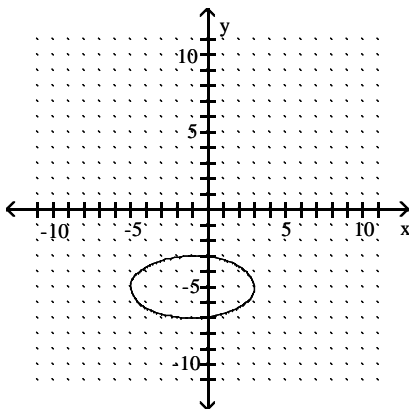
53)



54)



55)



Solve the problem.

- 56) The sum of two numbers is 6. Five times the first number equals 2 times the second number. Find the two numbers.
- 57) Devon purchased tickets to an air show for 6 adults and 2 children. The total cost was \$152. The cost of a child's ticket was \$4 less than the cost of an adult's ticket. Find the price of an adult's ticket and a child's ticket.
- 58) Jamil always throws loose change into a pencil holder on his desk and takes it out every two weeks. This time it is all nickels and dimes. There are 9 times as many dimes as nickels, and the value of the dimes is \$2.55 more than the value of the nickels. How many nickels and dimes does Jamil have?
- 59) Julie and Eric row their boat (at a constant speed) 27 miles downstream for 3 hours, helped by the current. Rowing at the same rate, the trip back against the current takes 9 hours. Find the rate of the current.
- 60) A barge takes 6 hours to move (at a constant rate) downstream for 60 miles, helped by a current of 2 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current.
- 61) The three angles in a triangle always add up to  $180^\circ$ . If one angle in a triangle is  $56^\circ$  and the second is 3 times the third, what are the three angles?
- 62) Dmitri needs 9 liters of a 14% solution of sulfuric acid for a research project in molecular biology. He has two supplies of sulfuric acid solution: one is an unlimited supply of the 9% solution and the other an unlimited supply of the 18% solution. How many liters of each solution should Dmitri use?
- 63) Chandra has 2 liters of a 18% solution of sodium hydroxide in a container. What is the amount and concentration of sodium hydroxide solution she must add to this in order to end up with 6 liters of 42% solution?

# Answer Key

Testname: 115EXAM4REVIEW

1)  $(-3, 9), (0, 3), (1, 1)$

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

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

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

5)  $-\frac{7}{17}$

6)  $m = \frac{3}{2}; (0, -6)$

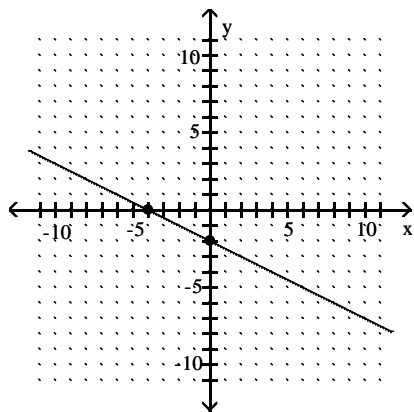
7)  $m = -9; (0, -12)$

8) perpendicular

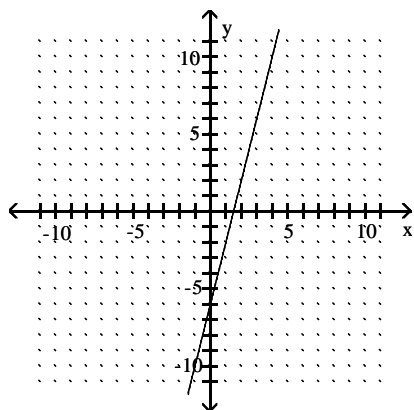
9) parallel

10) neither

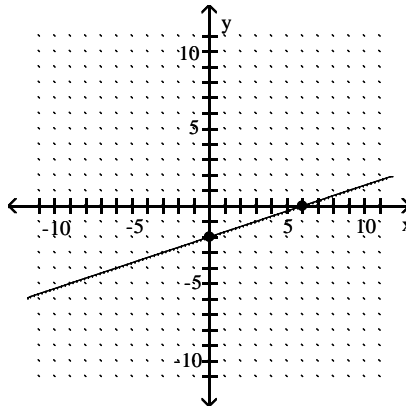
11)  $(0, -2), (-4, 0)$



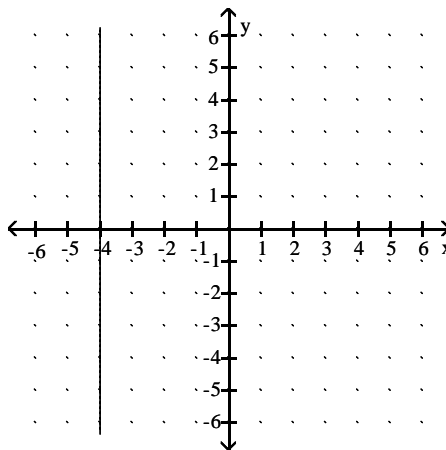
12)



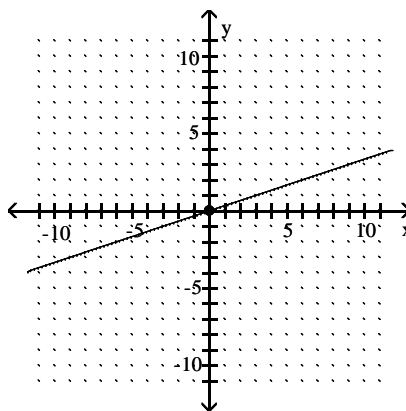
13)  $(0, -2), (6, 0)$



14)



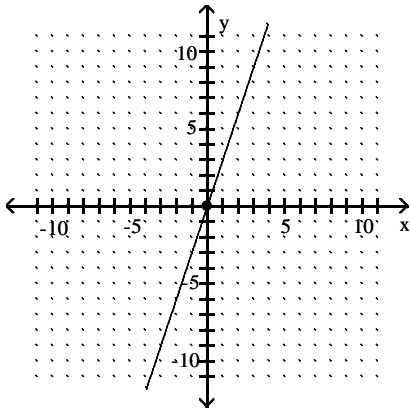
15)  $(0, 0)$



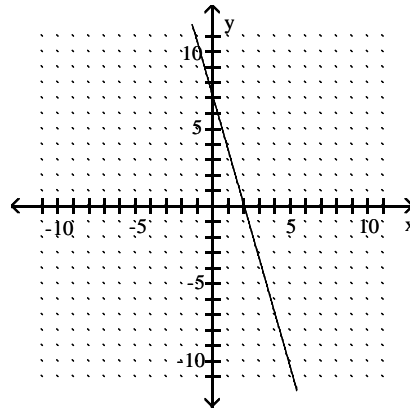
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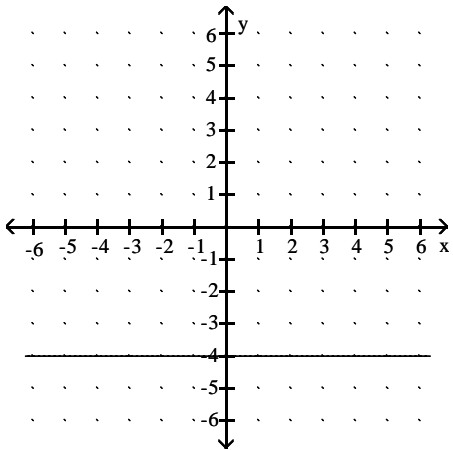
16) (0, 0)



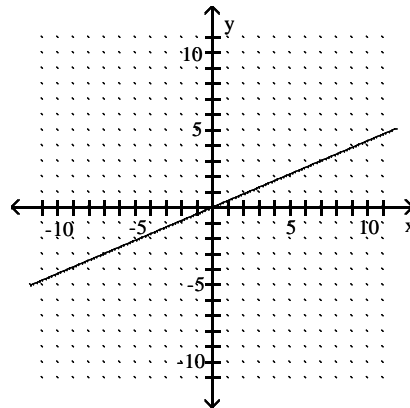
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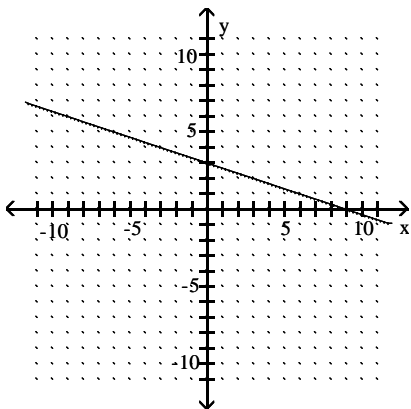
17)



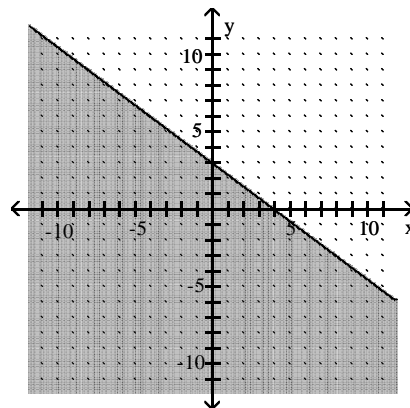
20)



18)



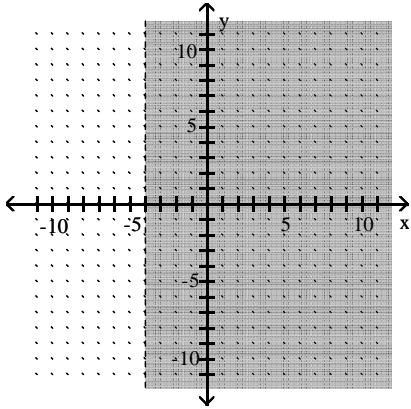
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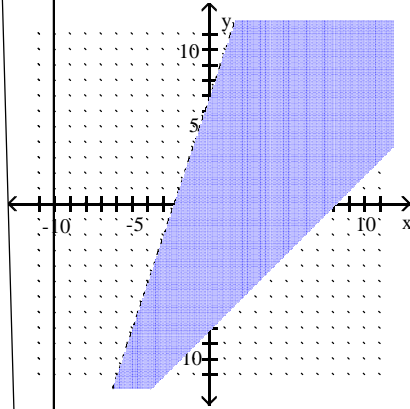
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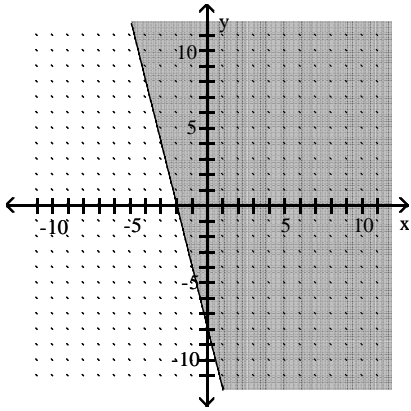
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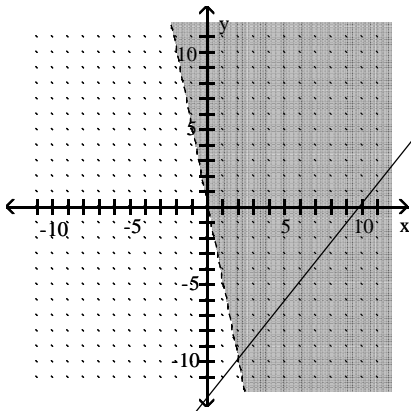
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23)



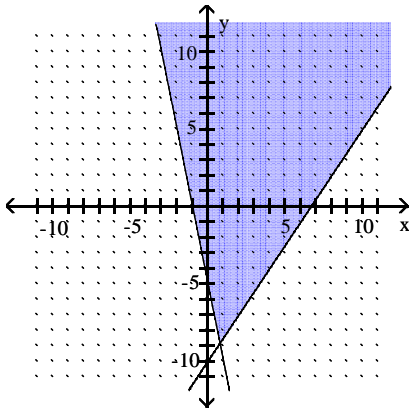
24)



# Answer Key

Testname: 115EXAM4REVIEW

28)



63) 4 liters of 54% solution

29)  $-4x - 5y = 28$

30)  $y = \frac{7}{3}x - 4$

31)  $3x + 8y = 39$

32)  $y = 10$

33)  $x = -9$

34)  $y = 5$

35)  $x = -4$

36) one solution

37) infinite number of solutions

38) identical lines

39)  $(27, -9)$

40) infinite number of solutions

41)  $(-6, 8)$

42)  $(5, -2)$

43)  $(9, 6)$

44)  $(\frac{4}{5}, -\frac{4}{5})$

45)  $(2, 9)$

46) 12

47) -7

48) 43

49) 21

50) domain:  $(-\infty, \infty)$ ; range:  $[-1, \infty)$

51) domain:  $(-\infty, \infty)$ ; range:  $(-\infty, 5]$

52) yes

53) no

54) yes

55) no

56)  $\frac{12}{7}$  and  $\frac{30}{7}$

57) adult's ticket: \$20; child's ticket: \$16

58) 3 nickels and 27 dimes

59) 3 mph

60) 10 hours

61)  $56^\circ, 93^\circ, 31^\circ$

62) 9% solution: 4 liters; 18% solution: 5 liters