Math 085 Comprehensive Minimal Compentency Study Guide (revised fall-14)

Name_____

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

Multiply or divide as indicated. Write the answer in lowest terms.

1) $\frac{7x + 21}{8x - 8} \cdot \frac{3x - 3}{6x + 18}$ 1) _____

A) $10\frac{1}{2}x$ B) $\frac{7}{48}$ C) $\frac{7}{16}$ D) $\frac{21(x + 3)}{48(x - 1)}$

2) $\frac{4x + 36}{3x - 3} \cdot \frac{9x - 9}{6x + 54}$ 2) _____

A) $\frac{36(x + 9)}{18(x - 1)}$ B) $\frac{2}{9}$ C) 120x D) 2

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

A) $\frac{4x - 8}{x - 2}$ B) $\frac{1}{4}$ C) 4 D) $\frac{(x + 2)^2}{4}$

4) $\frac{25x^2 - 4}{x^2 - 64} \div \frac{5x - 2}{x - 8}$ 4) _____

A) $\frac{5x - 2}{x - 8}$ B) $\frac{5x + 2}{x + 8}$

C) $\frac{x + 8}{5x + 2}$ D) $\frac{(5x - 2)(25x^2 - 4)}{(x^2 - 8)(x - 8)}$

Add or subtract. Write the answer in lowest terms.

5) $\frac{x}{x - 6} + \frac{12}{x + 6} - \frac{72}{x^2 - 36}$ 5) _____

A) $\frac{x - 24}{x - 6}$ B) $\frac{x + 24}{x + 6}$ C) 1 D) $\frac{x + 24}{x^2 - 36}$

6) $\frac{x}{x - 7} + \frac{14}{x + 7} - \frac{98}{x^2 - 49}$ 6) _____

A) $\frac{x + 28}{x^2 - 49}$ B) $\frac{x - 28}{x - 7}$ C) $\frac{x + 28}{x + 7}$ D) 1

Simplify the complex fraction.

7) $\dfrac{4 + \frac{2}{x}}{\frac{x}{3} + \frac{1}{6}}$ 7) _____

A) $\frac{x}{12}$ B) $\frac{12}{x}$ C) 1 D) 12

8) $\dfrac{4 + \frac{2}{x}}{\frac{x}{4} + \frac{1}{8}}$ 8) _____

A) $\frac{x}{16}$ B) 1 C) 16 D) $\frac{16}{x}$

Find any values of the variable for which the rational expression is undefined. Write answer with ≠.

9) $\dfrac{x^2 - 4}{x^2 - 11x + 30}$ 9) _____

A) $x \neq 0$ B) $x \neq 5, x \neq 6$ C) $x \neq -5, x \neq -6$ D) $x \neq 2, x \neq -2$

10) $\dfrac{x^2 - 16}{x^2 - 15x + 56}$ 10) _____

A) $x \neq 7, x \neq 8$ B) $x \neq 4, x \neq -4$ C) $x \neq -7, x \neq -8$ D) $x \neq 0$

Solve and check. Identify any extraneous solutions.

11) $\dfrac{7}{u - 3} - \dfrac{42}{u^2 - 9} = 1$ 11) _____

A) No solution (3 is extraneous) B) 4, 3
C) 4 (-3 is extraneous) D) 4 (3 is extraneous)

12) $\dfrac{8}{x - 2} + \dfrac{10}{x} = \dfrac{-20}{x^2 - 2x}$ 12) _____

A) 0 B) 0, 2
C) -2 D) No solution (0 is extraneous)

Solve the formula for the specified variable.

13) $S = \dfrac{a}{1 - r}$ for r 13) _____

A) $r = S - a$ B) $r = \frac{a}{S} - 1$ C) $r = \frac{a}{S}$ D) $r = \frac{S - a}{S}$

14) $I = \dfrac{kE}{R}$ for R 14) _____

A) $R = kEI$ B) $R = kE - I$ C) $R = \frac{kE}{I}$ D) $R = \frac{I}{kE}$

15) $\frac{PV}{T} = \frac{pv}{t}$ for P 15) _____

A) $P = \frac{pv}{tTV}$ B) $P = \frac{pvT}{tV}$ C) $P = \frac{tvT}{pV}$ D) $P = \frac{pvV}{tT}$

16) $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$ for c 16) _____

A) $c = \frac{a + b}{ab}$ B) $c = ab(a + b)$ C) $c = \frac{ab}{a + b}$ D) $c = a + b$

Solve the problem.

17) One printer can do a printing job in 8 hr. Another printer can do the same job in 11 hr. How long does it take the two printers to do the job working together? 17) _____

A) $4\frac{2}{5}$ hr B) $4\frac{12}{19}$ hr C) $\frac{1}{19}$ hr D) $29\frac{1}{3}$ hr

18) One maid can clean the house in 7 hr. Another maid can do the job in 4 hr. How long will it take them to do the job working together? 18) _____

A) $9\frac{1}{3}$ hr B) $\frac{1}{11}$ hr C) $2\frac{6}{11}$ hr D) $\frac{1}{28}$ hr

19) An experienced accountant can prepare a certain complexity of tax return in 9 hr. A novice accountant can do the job in 18 hr. How long will it take them to do the job working together? 19) _____

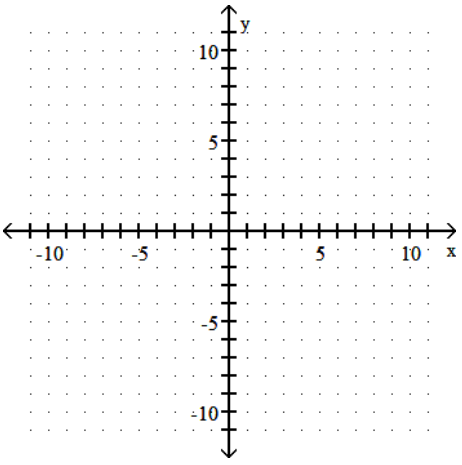
A) 6 hr B) $\frac{1}{162}$ hr C) 18 hr D) $\frac{1}{27}$ hr

20) A water tank can be filled in 5 min and emptied in 7 min. If the drain is accidentally left open when the tank is being filled, how long does it take to fill the tank? 20) _____

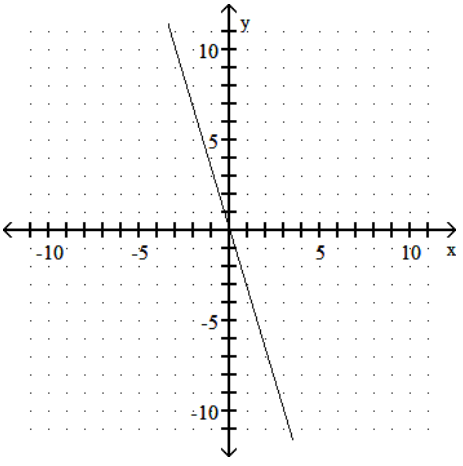
A) $17\frac{1}{2}$ min B) $2\frac{11}{12}$ min C) $\frac{1}{35}$ min D) $\frac{1}{12}$ min

Find the x- and y-intercepts. Then graph the equation.

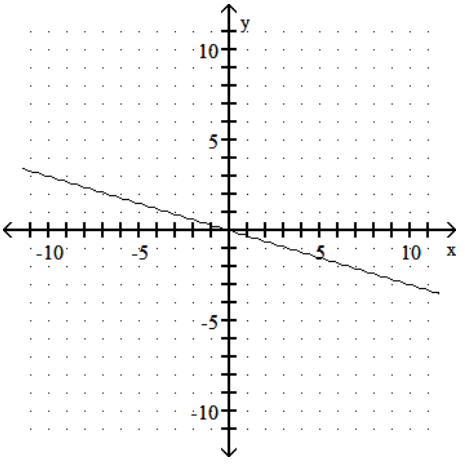
21) $2y = \frac{3}{5}x$ 21) _____



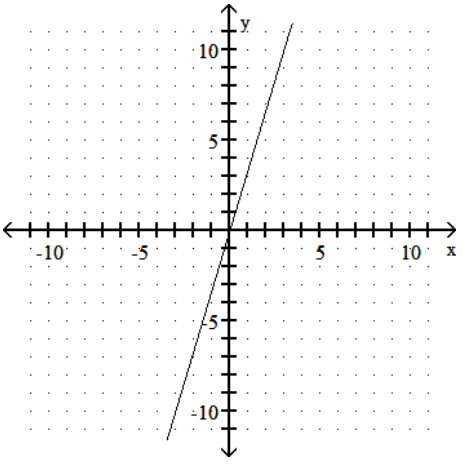
A) (0, 0); (0, 0)



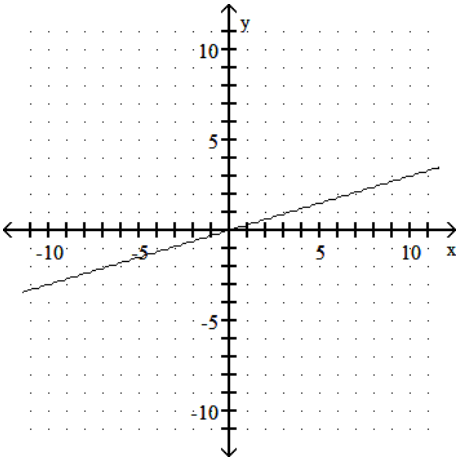
B) (0, 0); (0, 0)



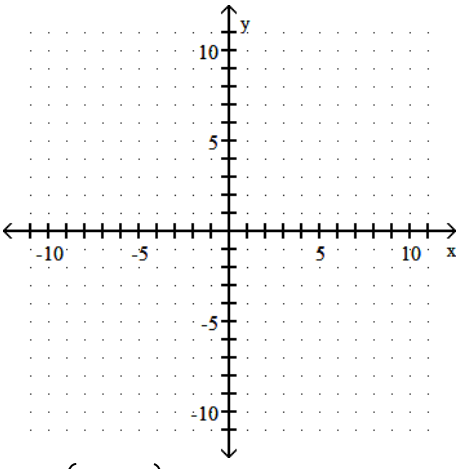
C) (0, 0); (0, 0)



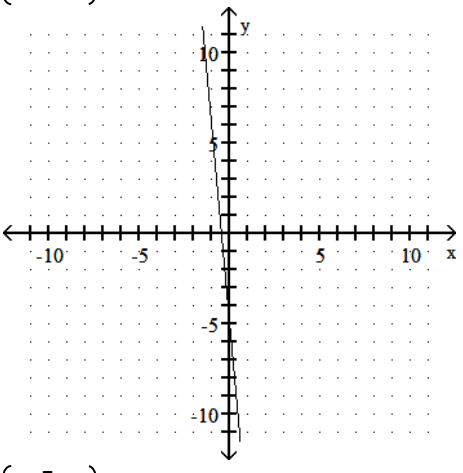
D) (0, 0); (0, 0)



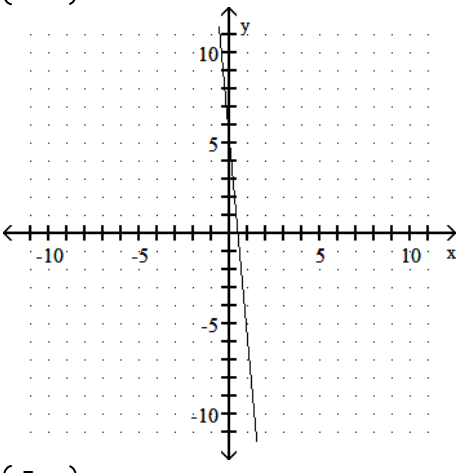
22) $\frac{11}{5}x + \frac{1}{5}y = 1$ 22) _____



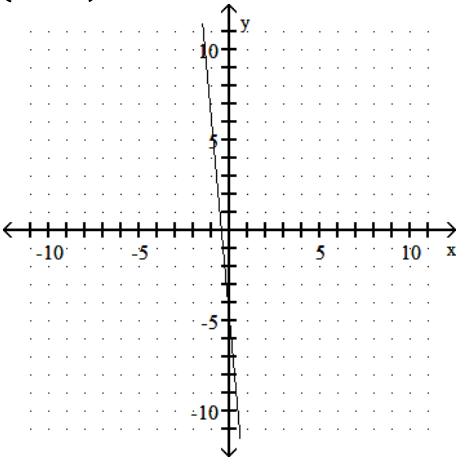
A) $\left(-\frac{5}{11}, 0\right)$; (0, 5)



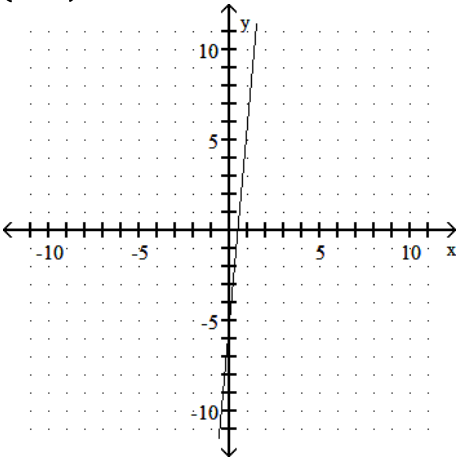
B) $\left(\frac{5}{11}, 0\right)$; (0, 5)



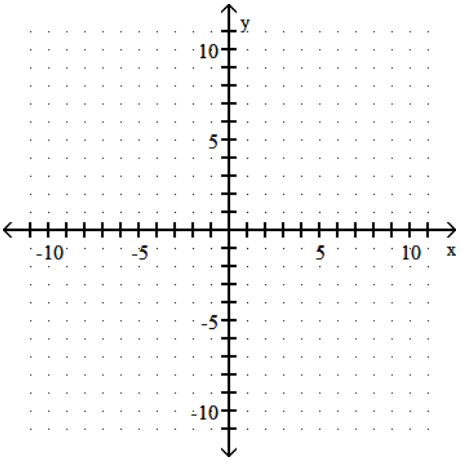
C) $\left(-\frac{5}{11}, 0\right)$; (0, -5)



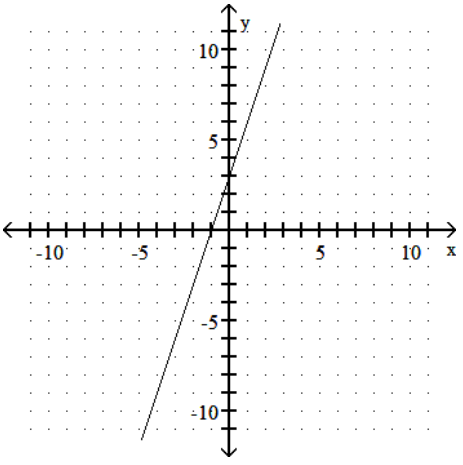
D) $\left(\frac{5}{11}, 0\right)$; (0, -5)



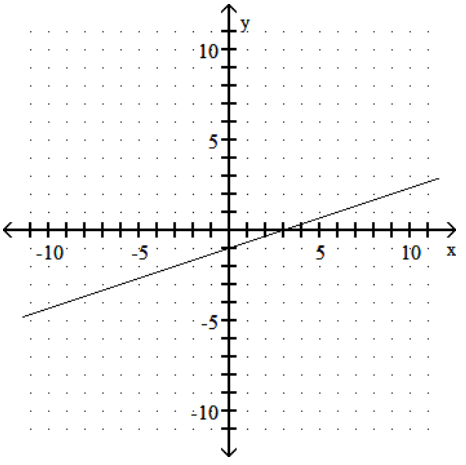
23) 5x - 15y = 15 23) _____



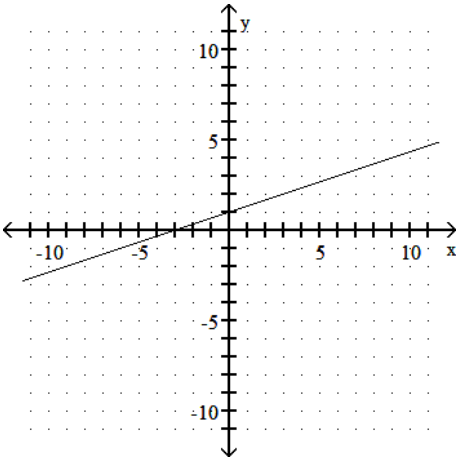
A) (-1, 0); (0, 3)



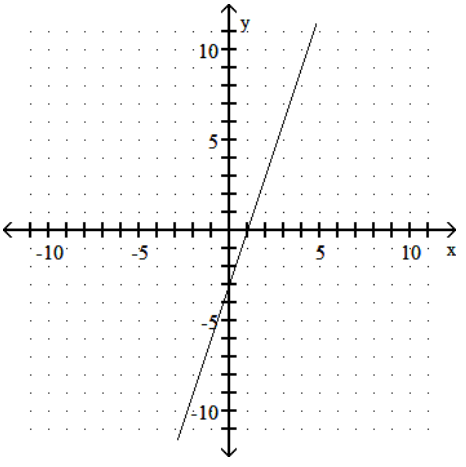
B) (3, 0); (0, -1)



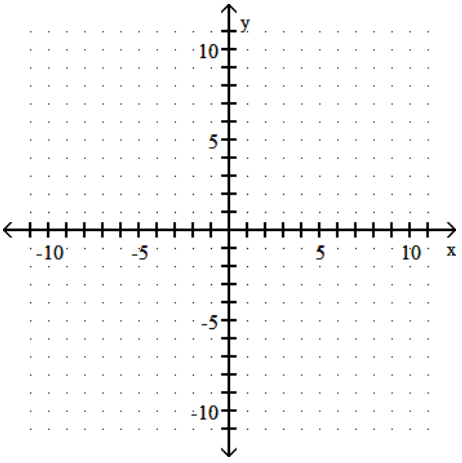
C) (-3, 0); (0, 1)



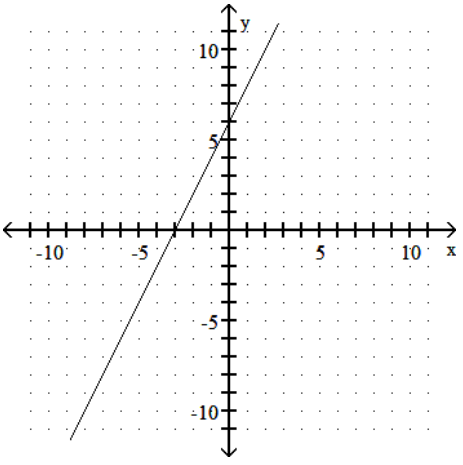
D) (1, 0); (0, -3)



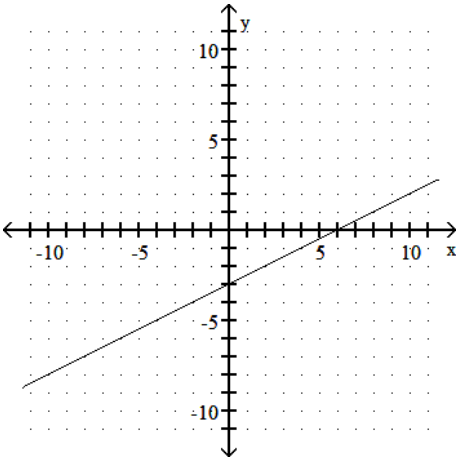
24) $-6x - 12y = 36$ 24) _____



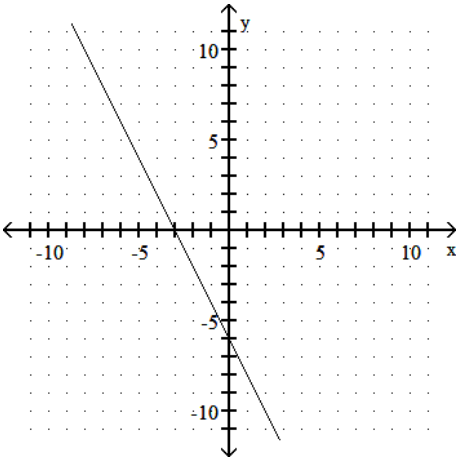
A) (-3, 0); (0, 6)



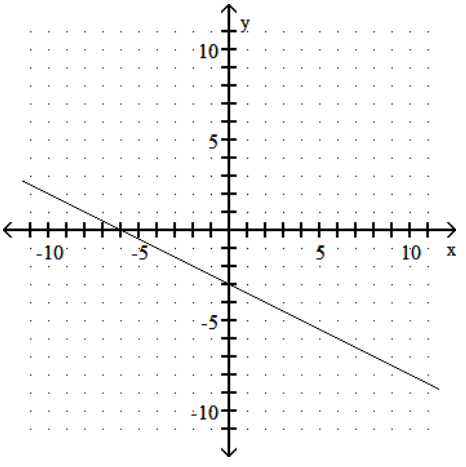
B) (6, 0); (0, -3)



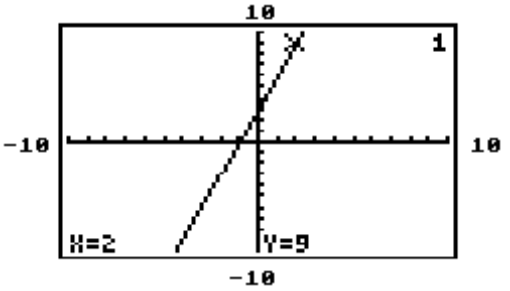
C) (-3, 0); (0, -6)



D) (-6, 0); (0, -3)

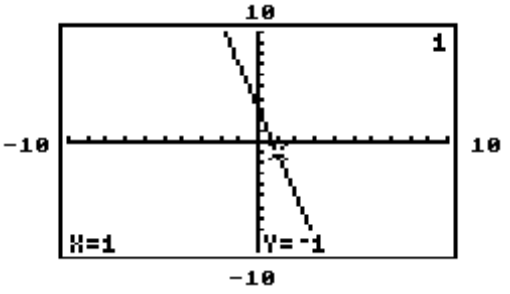


25) The screen shows the graph of one of the equations below. Which equation is it? 25) _____



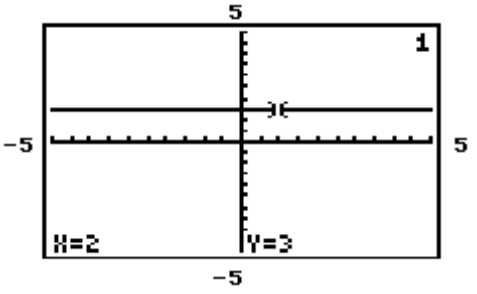
A) y + 3x = 15 B) y - 3x = 15 C) y + 3x = 3 D) y = 3x + 3

26) The screen shows the graph of one of the equations below. Which equation is it? 26) _____



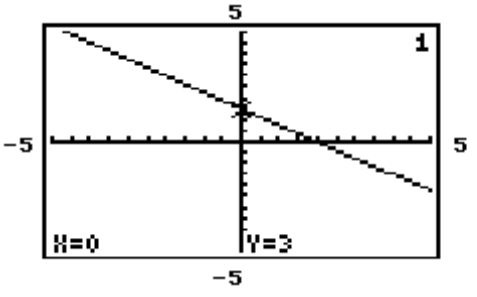
A) y - 4x = 3 B) y = -4x + 3 C) y - 4x = -5 D) y + 4x = -5

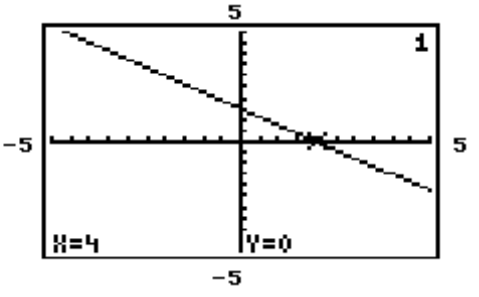
27) The screen shows the graph of one of the equations below. Which equation is it? 27) _____



A) y = 3 B) x + y = 5 C) y - x = 1 D) x - y = -1

28) The screens show the graph of one of the equations below. Which equation is it? 28) _____



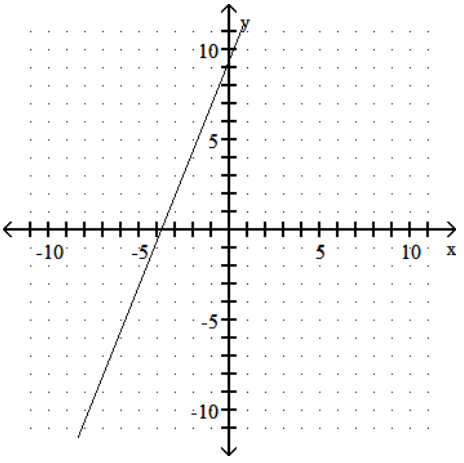


A) 3x - 4y = 12 B) 3x + 4y = 12 C) -3x + 4y = 12 D) 3x - 4y = -12

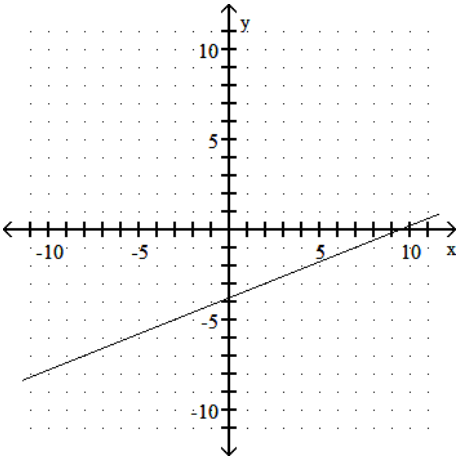
Find the slope of the line and sketch the graph.

29) $2x + 5y = 19$ 29) _____

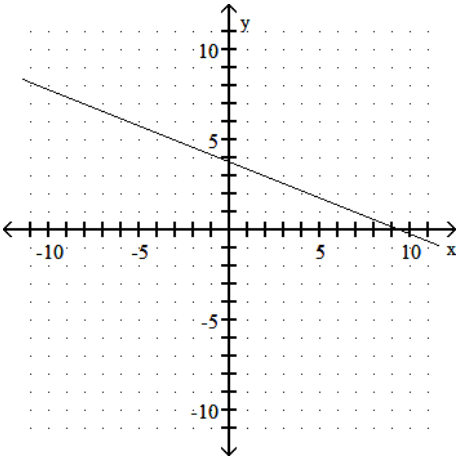
A) Slope: $\frac{5}{2}$



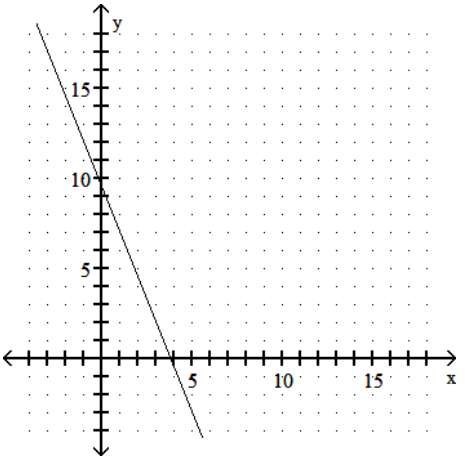
B) Slope: $\frac{2}{5}$



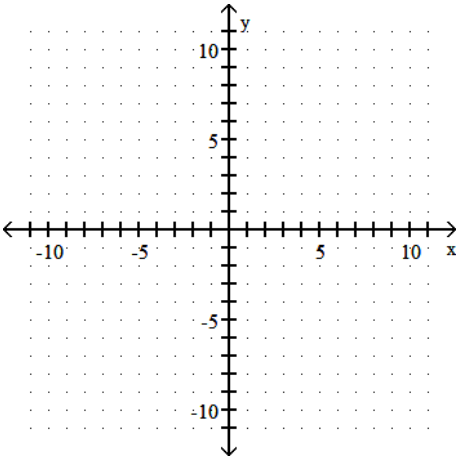
C) Slope: $-\frac{2}{5}$



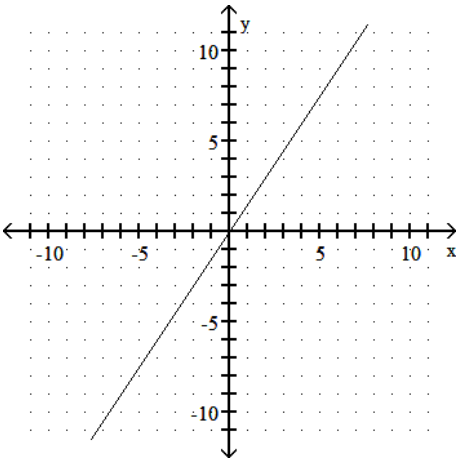
D) Slope: $-\frac{5}{2}$



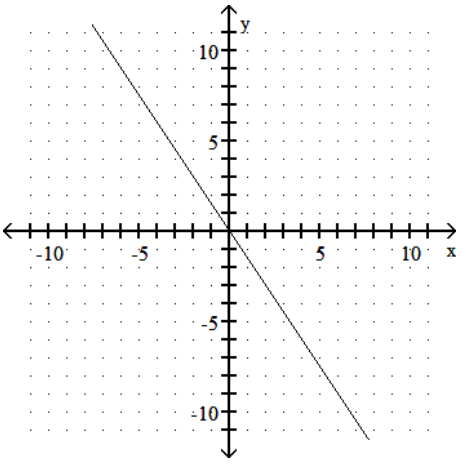
30) $2x - 3y = 0$ 30) _____



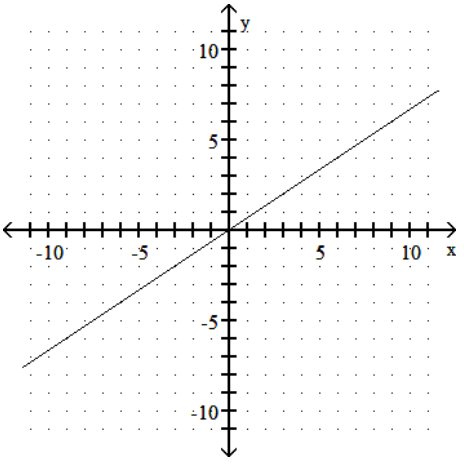
A) Slope: $-\frac{3}{2}$



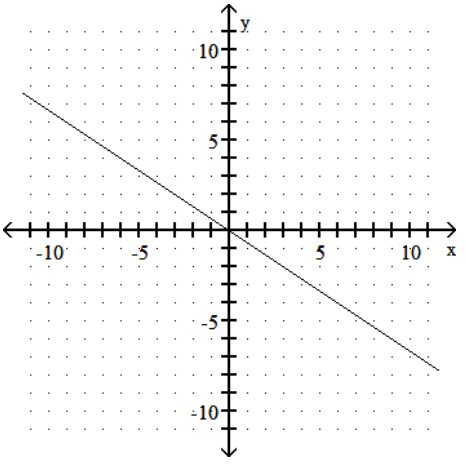
B) Slope: $\frac{3}{2}$



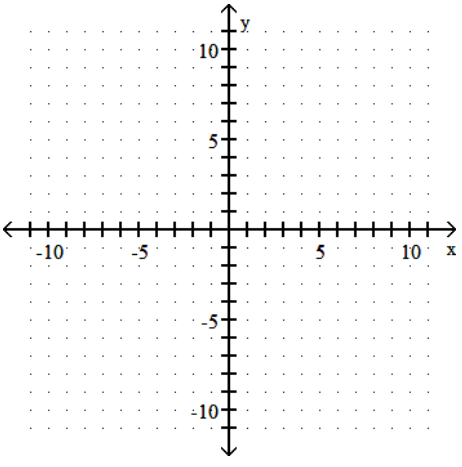
C) Slope: $\frac{2}{3}$



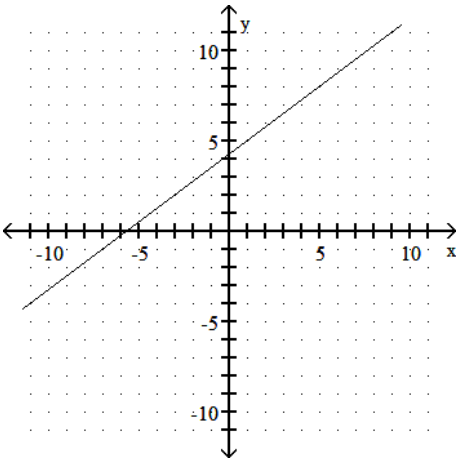
D) Slope: $-\frac{2}{3}$



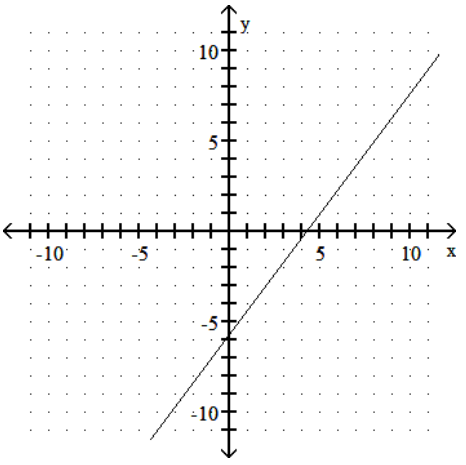
31) $3x - 4y = -17$ 31) _____



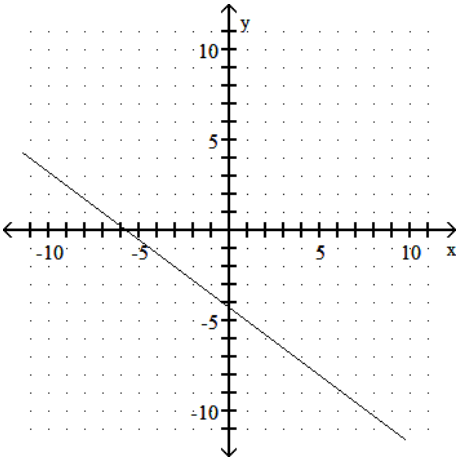
A) Slope: $\frac{3}{4}$



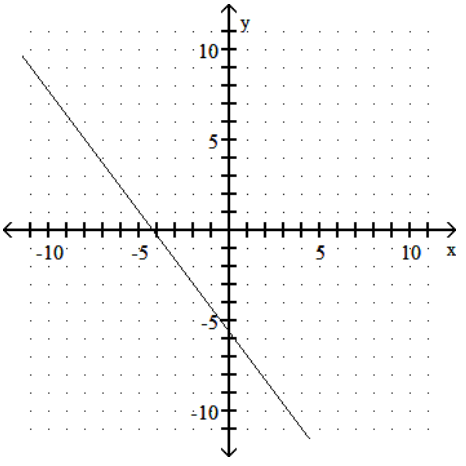
B) Slope: $-\frac{4}{3}$



C) Slope: $-\frac{3}{4}$

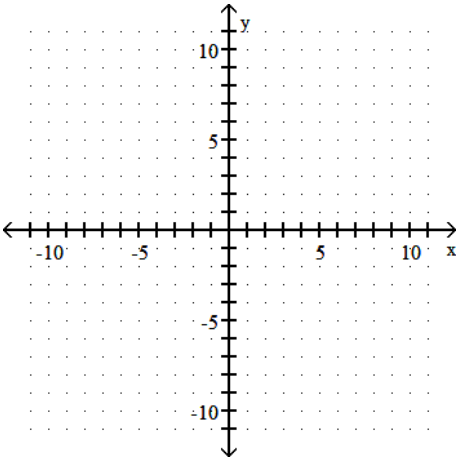


D) Slope: $\frac{4}{3}$

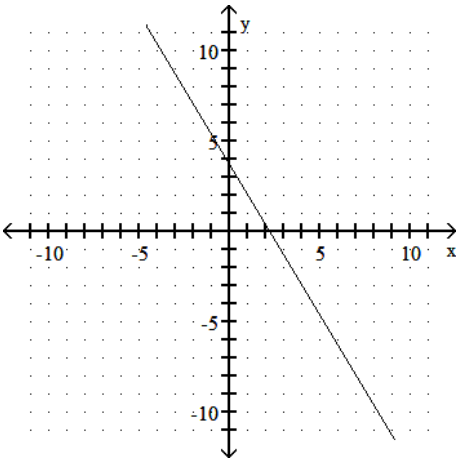


32) $-5y = -3x - 11$

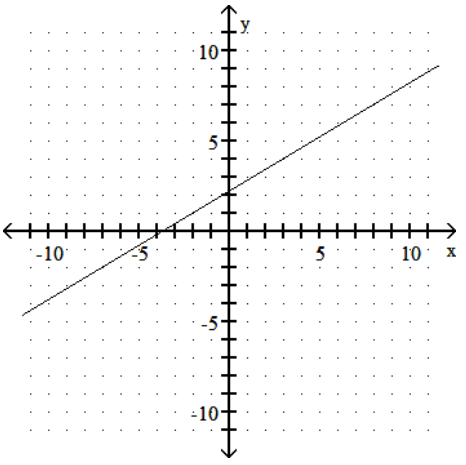
32) _____



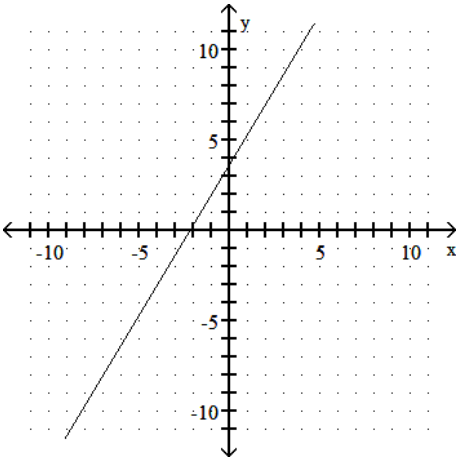
A) Slope: $\frac{5}{3}$



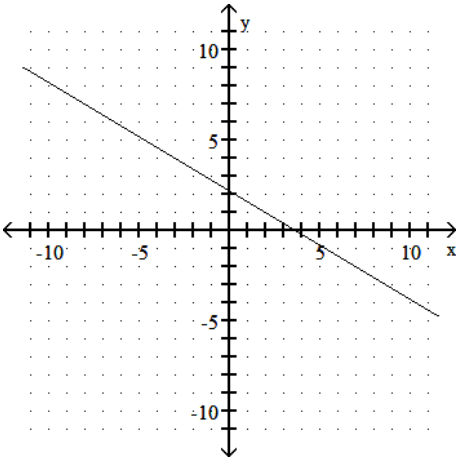
B) Slope: $\frac{3}{5}$



C) Slope: $-\frac{5}{3}$



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



Find an equation of the line satisfying the conditions. Write the equation in slope-intercept form.

33) Through (-6, 5); parallel to $-7x + 5y = 57$ 33) _____

A) $y = -\frac{5}{7}x - \frac{30}{7}$ B) $y = \frac{7}{5}x + \frac{67}{5}$ C) $y = \frac{5}{7}x + \frac{30}{7}$ D) $y = -\frac{7}{5}x - \frac{67}{5}$

34) Through (-6, 7); parallel to $3x + 7y = 3$ 34) _____

A) $y = -\frac{3}{7}x + \frac{31}{7}$ B) $y = \frac{3}{7}x + \frac{3}{7}$ C) $y = \frac{3}{7}x - \frac{31}{7}$ D) $y = -\frac{7}{3}x + \frac{7}{3}$

35) Through (1, 9); perpendicular to $x = 5$ 35) _____

A) $y = -9$ B) $y = -1$ C) $y = 9$ D) $y = 1$

36) Through (-5, -2); perpendicular to $-5x - 2y = 27$ 36) _____

A) $y = -\frac{2}{5}x - 4$ B) $y = \frac{5}{2}x + \frac{21}{2}$ C) $y = \frac{2}{5}x$ D) $y = -\frac{5}{2}x - \frac{29}{2}$

An equation that defines y as a function of x is given. Solve for y in terms of x, and replace y with the function notation f(x).

37) $9x + 5y = 8$ 37) _____

A) $f(x) = 9x - 8$ B) $f(x) = \frac{9}{5}x - \frac{8}{5}$ C) $f(x) = \frac{9}{5}x + \frac{8}{5}$ D) $f(x) = -\frac{9}{5}x + \frac{8}{5}$

38) $5x - 6y = 5$ 38) _____

A) $f(x) = \frac{5 - 5x}{-6}$ B) $f(x) = 5 - 5x$ C) $f(x) = -5x - \frac{5}{6}$ D) $f(x) = 5 - \frac{5x}{6}$

Find the value of the function.

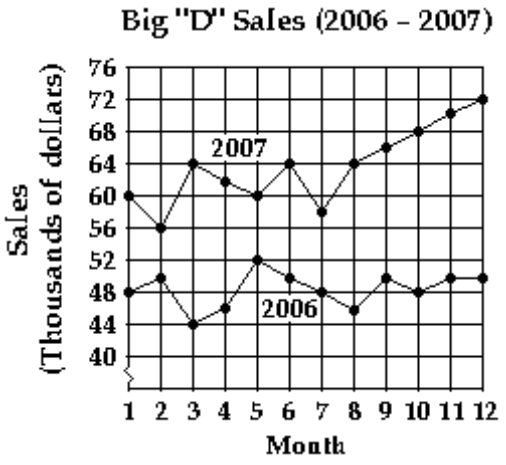
39) Given $f(x) = -|x + 2|$, find f(9). 39) _____

A) -11 B) 9 C) 11 D) -2

40) Find f(k - 1) when $f(x) = 3x^2 + 3x + 2$. 40) _____

A) $3k^2 - 3k + 8$ B) $3k^2 - 3k + 2$ C) $-3k^2 + 3k + 2$ D) $3k^2 + 9k + 8$

The graph shows sales in thousands of dollars for 1989 and 1990. Use it to answer the question.



41) Which month in 2006 had the lowest sales? 41) _____

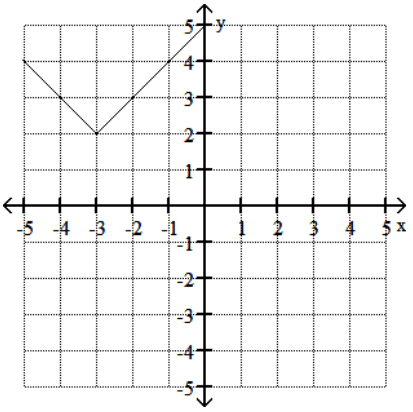
A) Month 2 B) Month 8 C) Month 3 D) Month 6

42) What month in 2006 had the highest sales? 42) _____

A) Month 2 B) Month 12 C) Month 3 D) Month 5

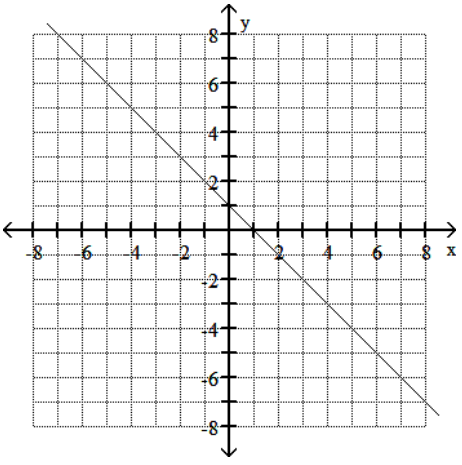
Use the graph to determine the value of the function.

43) f(-4) 43) _____



A) 5 B) 9 C) -1 D) 3

44) f(-3) 44) _____



A) -4 B) 4 C) 0 D) -2

Decide whether the relation is a function.

45) {(-1, 6), (1, -9), (4, -9), (9, -7), (10, -8)} 45) _____

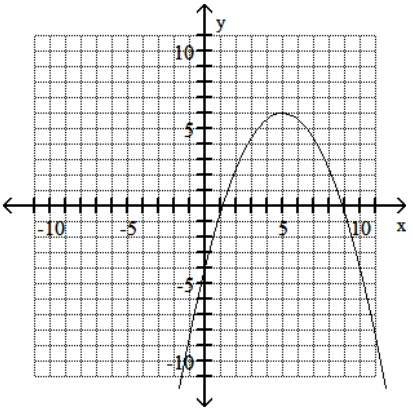
A) Not a function B) Function

46) {(-9, 3), (-9, 5), (1, 3), (6, 1), (10, -7)} 46) _____

A) Not a function B) Function

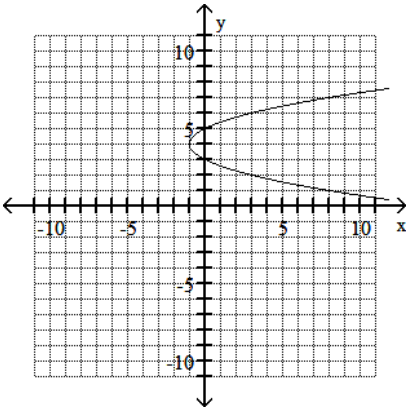
State whether the relation is a function.

47) 47) _____



A) It is a function. B) It is not a function.

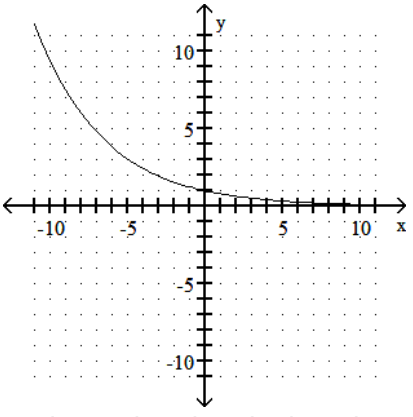
48) 48) _____



A) It is a function. B) It is not a function.

Decide whether the relation is a function, and give the domain and range.

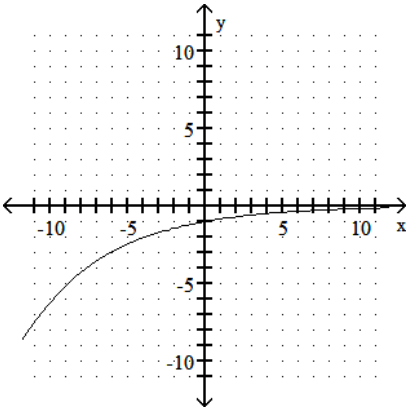
49) 49) _____



A) Function; domain: $(-\infty, \infty)$; range: $(0, \infty)$

B) Not a function; domain: $(-\infty, \infty)$; range: $(0, \infty)$

50) 50) _____



A) Function; domain: $(-\infty, \infty)$; range: $(-\infty, 0)$
B) Not a function; domain: $(-\infty, \infty)$; range: $(-\infty, 0)$

Find the specified domain.

51) Find the domain of $(f - g)(x)$ when $f(x) = \frac{2x}{x - 3}$ and $g(x) = \frac{4}{x + 1}$ 51) _____

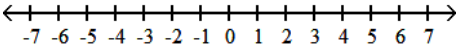
A) $(-\infty, -3) \cup (-3, 1) \cup (1, \infty)$
B) $(-\infty, -4) \cup (-4, -2) \cup (-2, \infty)$
C) $(-\infty, \infty)$
D) $(-\infty, -1) \cup (-1, 3) \cup (3, \infty)$

52) Find the domain of $\left(\frac{f}{g}\right)(x)$ when $f(x) = 7x - 5$ and $g(x) = \frac{2}{x - 11}$ 52) _____

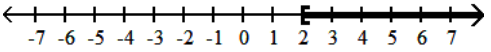
A) $(-\infty, -11) \cup (-11, \infty)$
B) $\left(-\infty, \frac{5}{7}\right) \cup \left(\frac{5}{7}, 11\right) \cup (11, \infty)$
C) $(-\infty, \infty)$
D) $(-\infty, 11) \cup (11, \infty)$

For the compound inequality, give the solution set in both interval and graph forms.

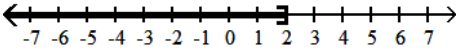
53) $x \geq 2$ and $x \geq -3$ 53) _____



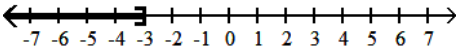
A) $[2, \infty)$



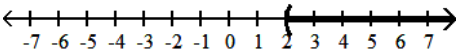
B) $(-\infty, 2]$



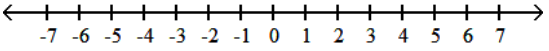
C) $(-\infty, -3]$



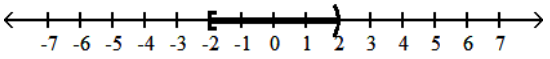
D) $(2, \infty)$



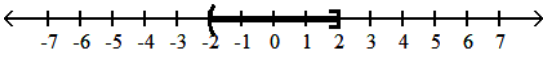
54) $-13 < 2x - 9$ and $6x + 5 < 17$ 54) _____



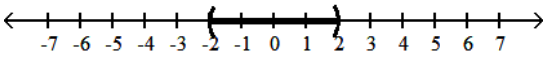
A) $[-2, 2)$



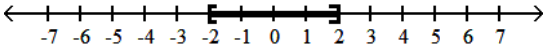
B) $(-2, 2]$



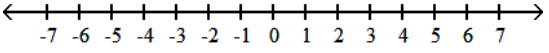
C) $(-2, 2)$



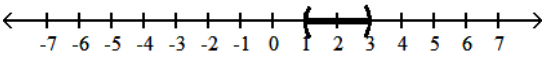
D) $[-2, 2]$



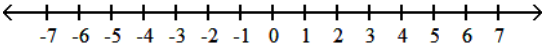
55) $9x - 6 < 3x$ or $-2x \leq -6$ 55) _____



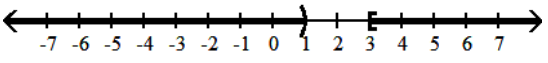
A) $(1, 3)$



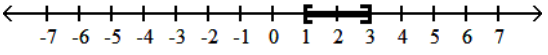
B) $\varnothing$



C) $(-\infty, 1) \cup [3, \infty)$

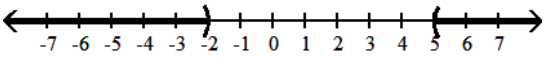


D) $[1, 3]$

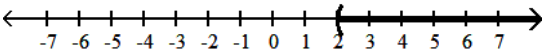


56) $x - 2 > 3$ or $x + 1 < 3$ 56) _____

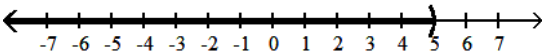
A) $(-\infty, -2) \cup (5, \infty)$



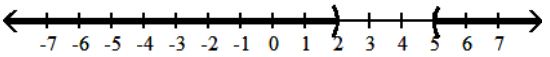
B) $(2, \infty)$



C) $(-\infty, 5)$



D) $(-\infty, 2) \cup (5, \infty)$



Solve the equation.

57) $|8m + 2| = 7$ 57) _____

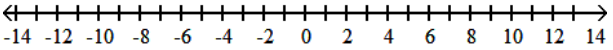
A) $\varnothing$ B) $\left\{-\frac{5}{8}, \frac{9}{8}\right\}$ C) $\left\{\frac{5}{2}, -\frac{9}{2}\right\}$ D) $\left\{\frac{5}{8}, -\frac{9}{8}\right\}$

58) $|2s + 6| = |s + 8|$ 58) _____

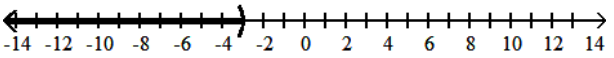
A) $\varnothing$ B) $\left\{-2, \frac{14}{3}\right\}$ C) $\left\{2, -\frac{14}{3}\right\}$ D) $\{2\}$

Solve the inequality and graph the solution set.

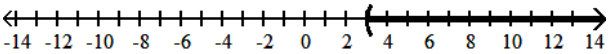
59) $|x| > 3$ 59) _____



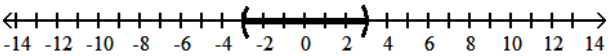
A) $(-3, \infty)$



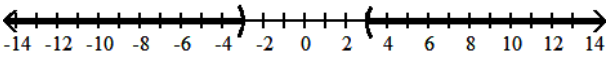
B) $(3, \infty)$



C) $(-3, 3)$

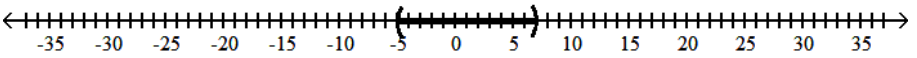


D) $(-\infty, -3) \cup (3, \infty)$

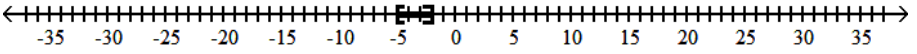


60) $|h - 1| \le 6$ 60) _____

A) $(-5, 7)$

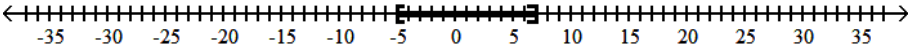


B) $[-5, -2]$



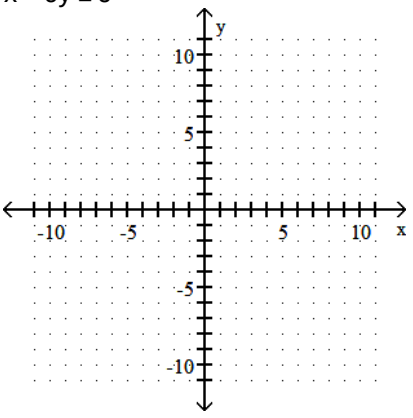
C) $\varnothing$

D) $[-5, 7]$

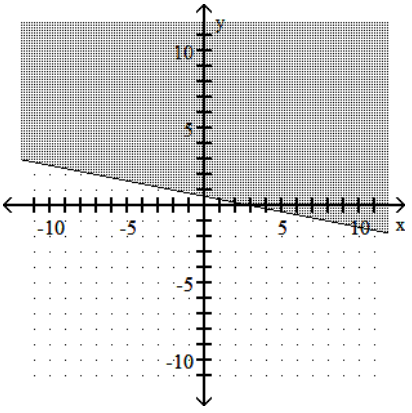


Graph the linear inequality in two variables.

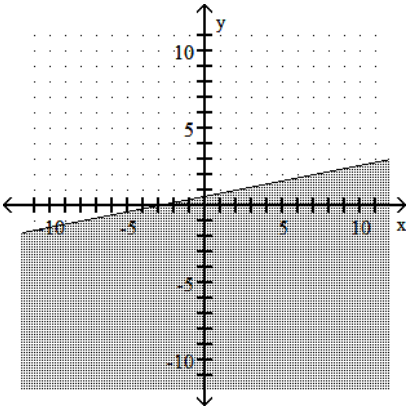
61) $x + 5y \geq 3$ 61) _____



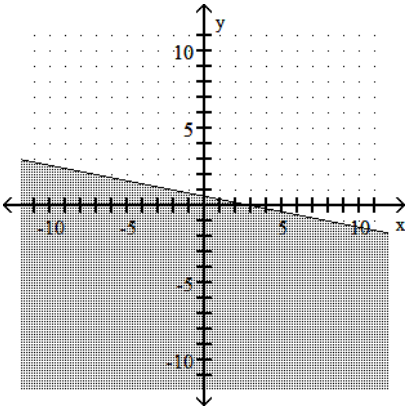
A)



B)



C)



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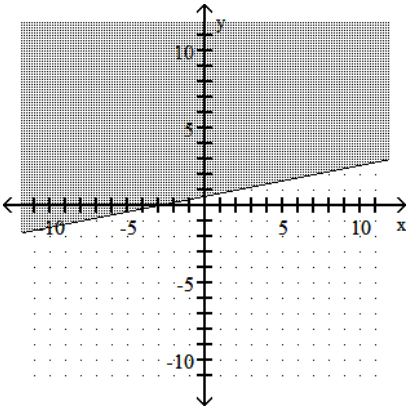
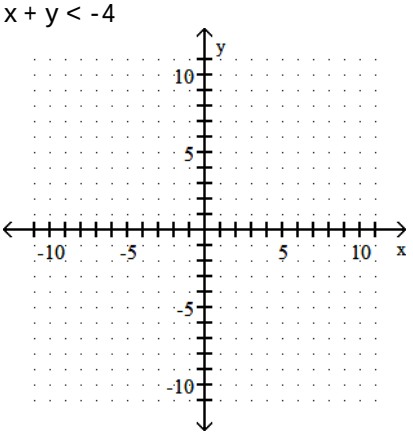
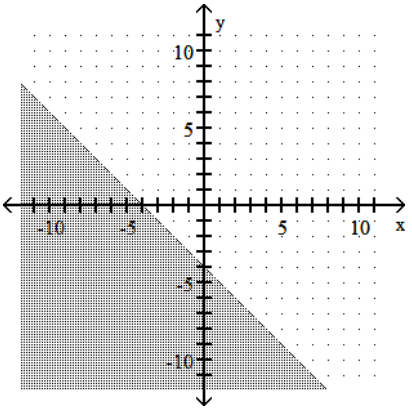


62) $x + y < -4$ 62) _____



A)



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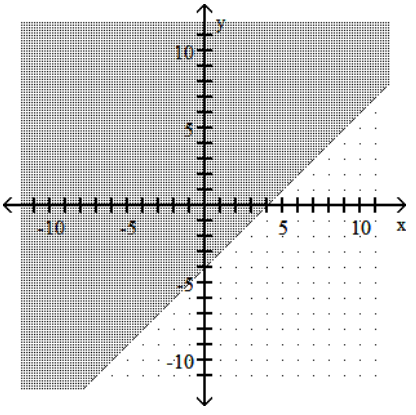

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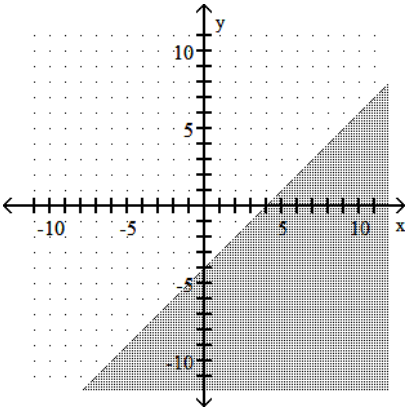
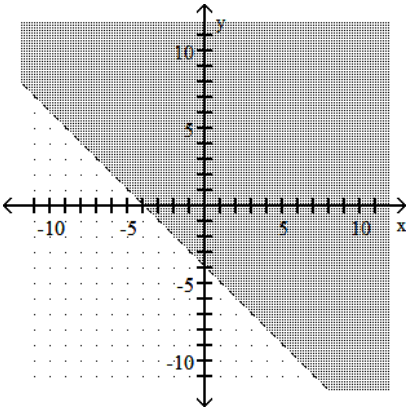
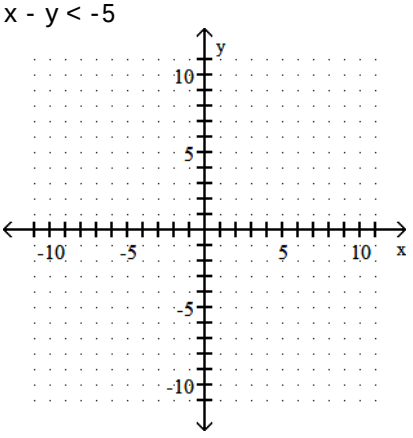


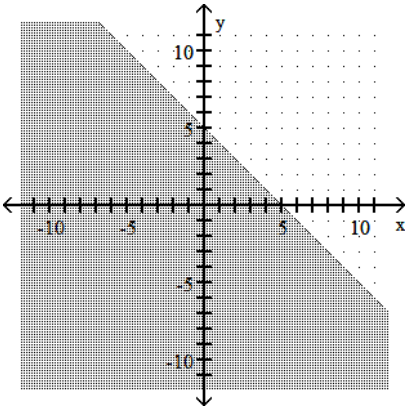
D)



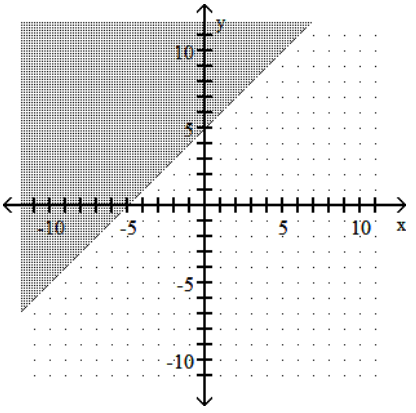
63) x - y < -5 63) _____



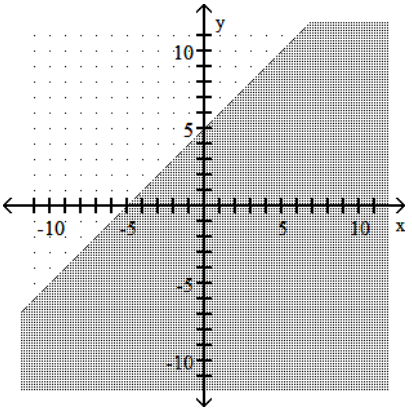
A)



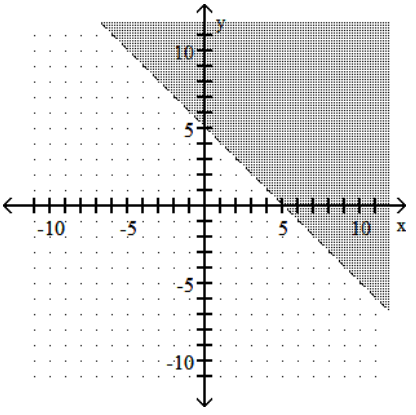
B)



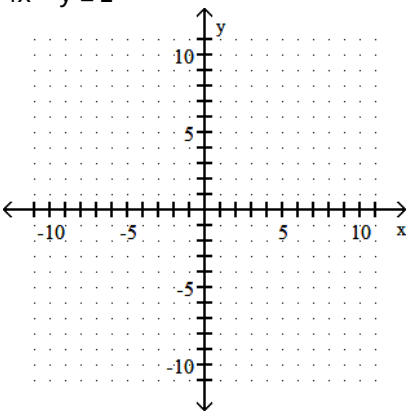
C)



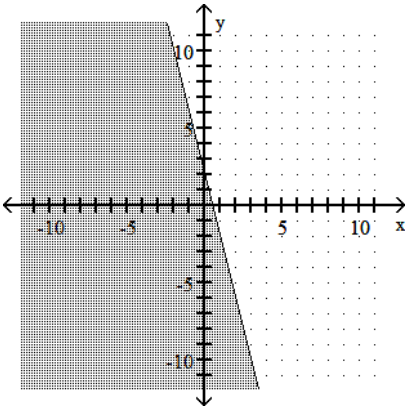
D)



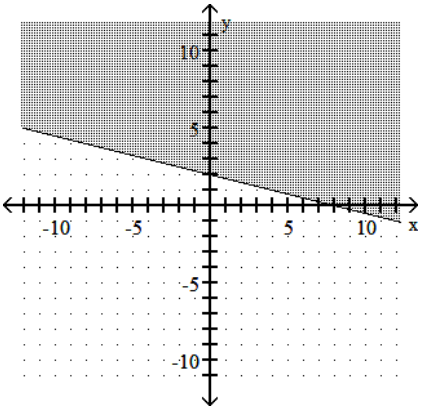
64) $4x + y \le 2$ 64) _____



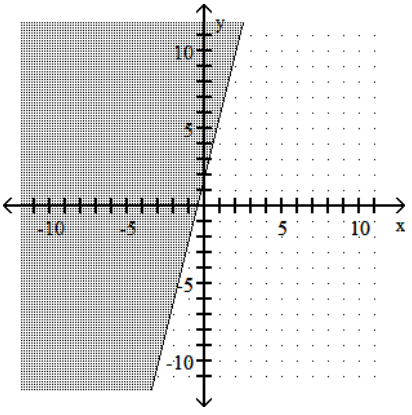
A)



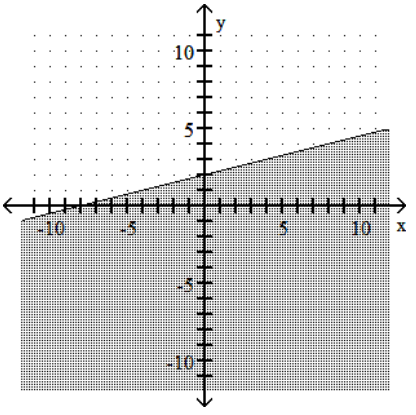
B)



C)



D)



Write with rational exponents and then apply the properties of exponents. Assume that all radicands represent positive real numbers. Give answers in exponential form.

65) $\sqrt[4]{x^7} \cdot \sqrt[3]{x^4}$ 65) _____

A) $x^{37/12}$ B) $x^{28/12}$ C) $x^{11/7}$ D) $x^{12/28}$

Simplify the expression. Assume that all variables represent positive real numbers.

66) $\sqrt[3]{x^5} \cdot \sqrt[3]{x^8}$ 66) _____

A) $x^{40/3}$ B) x^{120} C) $x^{13/3}$ D) $x^{3/3}$

67) $\dfrac{\sqrt{x^5}}{\sqrt{x^{10}}}$ 67) _____

A) $\dfrac{1}{x^{15/2}}$ B) $\dfrac{1}{x^{10}}$ C) $x^{5/2}$ D) $\dfrac{1}{x^{5/2}}$

68) $\dfrac{\sqrt{x^3}}{\sqrt{x^{12}}}$ 68) _____

A) $\dfrac{1}{x^{18}}$ B) $x^{9/2}$ C) $\dfrac{1}{x^{9/2}}$ D) $\dfrac{1}{x^{15/2}}$

Express the radical in simplified form.

69) $\sqrt{48}$ 69) _____

A) $16\sqrt{3}$ B) 4 C) 6 D) $4\sqrt{3}$

70) $-\sqrt{27}$ 70) _____

A) 5 B) $-3\sqrt{3}$ C) $-9\sqrt{3}$ D) 3

71) $\sqrt[3]{-64}$ 71) _____

A) -16 B) 16 C) -4 D) 4

72) $\sqrt[3]{24}$ 72) _____

A) $3\sqrt[3]{2}$ B) $2\sqrt[3]{3}$ C) 4 D) 2

Simplify. Assume that all variables represent positive real numbers.

73) $-7\sqrt{7} - 9\sqrt{63}$ 73) _____

A) $34\sqrt{7}$ B) $-16\sqrt{7}$ C) $-34\sqrt{7}$ D) $-20\sqrt{7}$

74) $\sqrt{2x} + 8\sqrt{32x} + 4\sqrt{72x}$ 74) _____

A) $57\sqrt{2x}$ B) $56\sqrt{2x}$ C) $12\sqrt{106x}$ D) $13\sqrt{106x}$

Rationalize the denominator. Assume that all variables represent positive real numbers and that the denominator is not zero.

75) $\dfrac{\sqrt{5}}{\sqrt{11}+3}$ 75) _____

A) $\dfrac{\sqrt{55}-3\sqrt{5}}{2}$ B) $\dfrac{3\sqrt{55}+115}{33}$ C) $\dfrac{\sqrt{55}+3\sqrt{5}}{2}$ D) $\dfrac{\sqrt{55}-3\sqrt{5}}{14}$

76) $\dfrac{2x}{\sqrt{9+x}}$ 76) _____

A) $\dfrac{2x}{9+x}$ B) $2x$ C) $2x\sqrt{9+x}$ D) $\dfrac{2x\sqrt{9+x}}{9+x}$

Write the expression in lowest terms. Assume that all variables represent positive real numbers.

77) $\dfrac{12-24\sqrt{14}}{16}$ 77) _____

A) $\dfrac{12-12\sqrt{7}}{4}$ B) $\dfrac{6-12\sqrt{7}}{8}$ C) $\dfrac{3-6\sqrt{14}}{4}$ D) $\dfrac{6-24\sqrt{14}}{4}$

78) $\dfrac{36-8\sqrt{98}}{20}$ 78) _____

A) $\dfrac{9-2\sqrt{98}}{5}$ B) $\dfrac{18-28\sqrt{2}}{10}$ C) $\dfrac{18-8\sqrt{98}}{5}$ D) $\dfrac{9-14\sqrt{2}}{5}$

79) $\dfrac{40-24\sqrt{50}}{28}$ 79) _____

A) $\dfrac{20-60\sqrt{2}}{14}$ B) $\dfrac{10-6\sqrt{50}}{7}$ C) $\dfrac{20-24\sqrt{50}}{7}$ D) $\dfrac{10-30\sqrt{2}}{7}$

80) $\dfrac{42y+\sqrt{1512y^3}}{7y}$ 80) _____

A) $\dfrac{42+6\sqrt{42y}}{7}$ B) $6+6\sqrt{6}$ C) $6+6\sqrt{42y}$ D) $\dfrac{42+6\sqrt{42}}{7}$

Solve this equation.

81) $\sqrt{x+3}=x-3$ 81) _____

A) $\{6\}$ B) $\{1, 13\}$ C) $\{1, 6\}$ D) $\{6, 13\}$

82) $\sqrt{x}+3=0$ 82) _____

A) $\{\sqrt{3}\}$ B) $\{9\}$ C) $\varnothing$ D) $\{-9\}$

83) $\sqrt{9x-5}-7=0$ 83) _____

A) $\{49\}$ B) $\left\{\dfrac{4}{3}\right\}$ C) $\varnothing$ D) $\{6\}$

84) $\sqrt{x + 6} + \sqrt{2 - x} = 4$ 84) _____

A) $\{\sqrt{31}, -2\}$ B) $\{0\}$ C) $\{2, -2\}$ D) $\{-2\}$

Determine the number that will complete the square to solve the equation after the constant term has been written on the right side. Do not actually solve.

85) $w^2 - 10w + 2 = 0$ 85) _____

A) -5 B) 0 C) 25 D) 1

86) $2x^2 + x - 3 = 0$ 86) _____

A) $\frac{1}{4}$ B) 16 C) $\frac{1}{16}$ D) $-\frac{1}{16}$

Find the term that should be added to the expression to form a perfect square trinomial. Write the resulting perfect square trinomial in factored form.

87) $x^2 - \frac{5}{6}x +$ 87) _____

A) $0; \left(x - \frac{5}{12}\right)^2$ B) $\frac{25}{144}; \left(x + \frac{5}{12}\right)^2$ C) $\frac{25}{36}; \left(x - \frac{5}{12}\right)^2$ D) $\frac{25}{144}; \left(x - \frac{5}{12}\right)^2$

88) $x^2 + \frac{2}{7}x +$ 88) _____

A) $0; \left(x - \frac{1}{7}\right)^2$ B) $\frac{1}{49}; \left(x + \frac{1}{7}\right)^2$ C) $\frac{1}{49}; \left(x - \frac{1}{7}\right)^2$ D) $49; \left(x + \frac{1}{7}\right)^2$

Use the quadratic formula to solve the equation.

89) $8x^2 + 7x = -2$ 89) _____

A) $\left\{\frac{7 + \sqrt{15}}{16}, \frac{7 - \sqrt{15}}{16}\right\}$ B) $\left\{\frac{7 + i\sqrt{15}}{16}, \frac{7 - i\sqrt{15}}{16}\right\}$

C) $\left\{\frac{-7 + i\sqrt{15}}{16}, \frac{-7 - i\sqrt{15}}{16}\right\}$ D) $\left\{\frac{-7 + \sqrt{15}}{16}, \frac{-7 - \sqrt{15}}{16}\right\}$

90) $x^2 + x + 5 = 0$ 90) _____

A) $\left\{\frac{-1 + i\sqrt{19}}{2}, \frac{-1 - i\sqrt{19}}{2}\right\}$ B) $\left\{\frac{-1 + \sqrt{19}}{2}, \frac{-1 - \sqrt{19}}{2}\right\}$

C) $\left\{\frac{1 + \sqrt{19}}{2}, \frac{1 - \sqrt{19}}{2}\right\}$ D) $\left\{\frac{1 + i\sqrt{19}}{2}, \frac{1 - i\sqrt{19}}{2}\right\}$

91) $7x^2 + 9x + 4 = 0$ 91) _____

A) $\left\{\frac{-9 + i\sqrt{31}}{14}, \frac{-9 - i\sqrt{31}}{14}\right\}$ B) $\left\{\frac{9 + \sqrt{31}}{14}, \frac{9 - \sqrt{31}}{14}\right\}$

C) $\left\{\frac{9 + i\sqrt{31}}{14}, \frac{9 - i\sqrt{31}}{14}\right\}$ D) $\left\{\frac{-9 + \sqrt{31}}{14}, \frac{-9 - \sqrt{31}}{14}\right\}$

92) $x^2 - 2x = -\frac{7}{6}$ 92) _____

A) $\left\{0, -\frac{7}{12}i\right\}$

B) $\left\{\frac{6 + i\sqrt{6}}{6}, \frac{6 - i\sqrt{6}}{6}\right\}$

C) $\left\{\frac{-6 + i\sqrt{6}}{6}, \frac{-6 - i\sqrt{6}}{6}\right\}$

D) $\{2i, 0\}$

Identify the vertex, axis, domain and range.

93) $f(x) = \frac{4}{7}x^2 - 1$ 93) _____

A) Vertex: (0, -1); Axis: x = 0;
Domain: $(-\infty, \infty)$; Range: $[-1, \infty)$

B) Vertex: (0, 1); Axis: x = 0;
Domain: $(-\infty, \infty)$; Range: $[1, \infty)$

C) Vertex: (0, -1); Axis: x = 0;
Domain: $(-\infty, \infty)$; Range: $[-1, \infty)$

D) Vertex: $\left(0, \frac{4}{7}\right)$; Axis: x = 0;
Domain: $(-\infty, \infty)$; Range: $\left[\frac{4}{7}, \infty\right)$

94) $f(x) = -x^2 + 2x - 6$ 94) _____

A) Vertex: (-1, -7); Axis: x = -1;
Domain: $(-\infty, \infty)$; Range: $[-7, \infty)$

B) Vertex: (1, -5); Axis: x = 1;
Domain: $(-\infty, \infty)$; Range: $(-\infty, -5]$

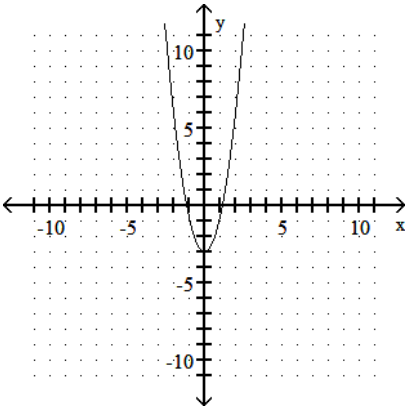
C) Vertex: (1, -9); Axis: x = 1;
Domain: $(-\infty, \infty)$; Range: $[-7, \infty)$

D) Vertex: (1, -9); Axis: x = 1;
Domain: $(-\infty, \infty)$; Range: $[-7, \infty)$

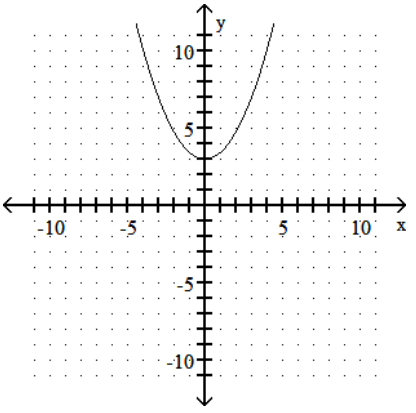
95) $f(x) = \frac{4}{9}x^2 + 3$ 95) _____

A) Vertex: $\left(0, \frac{4}{9}\right)$; Axis: x = 0;

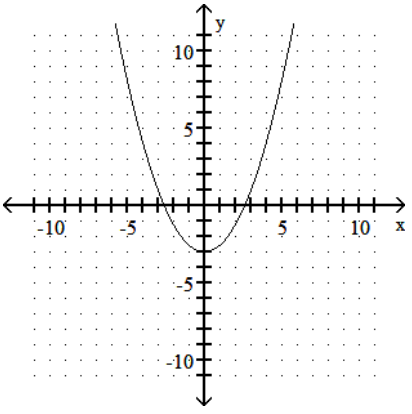
Domain: $(-\infty, \infty)$; Range: $\left[\frac{4}{9}, \infty\right)$



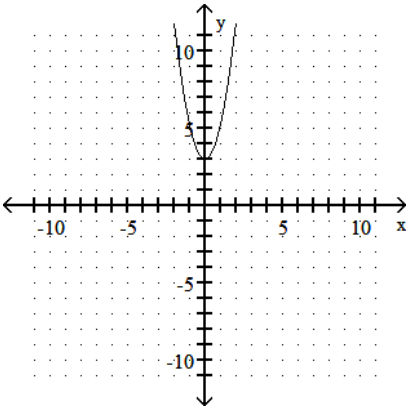
B) Vertex: (0, 3); Axis: x = 0;
Domain: $(-\infty, \infty)$; Range: $[3, \infty)$



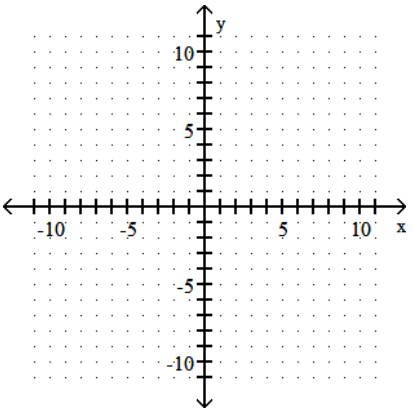
C) Vertex: (0, - 3); Axis: x = 0;
Domain: $(-\infty, \infty)$; Range: $[-3, \infty)$



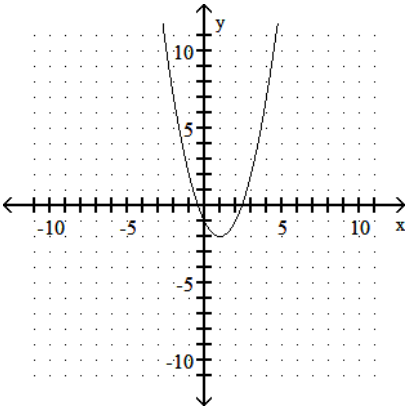
D) Vertex: (0, 3); Axis: x = 0;
Domain: $(-\infty, \infty)$; Range: $[3, \infty)$



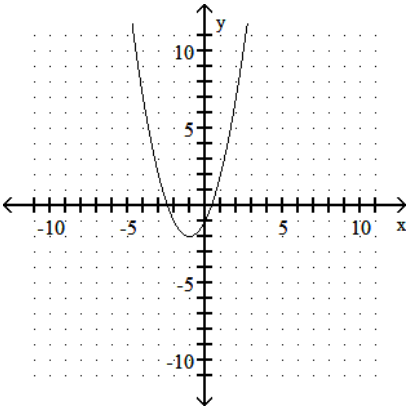
96) $f(x) = -x^2 + 2x + 1$ 96) _____



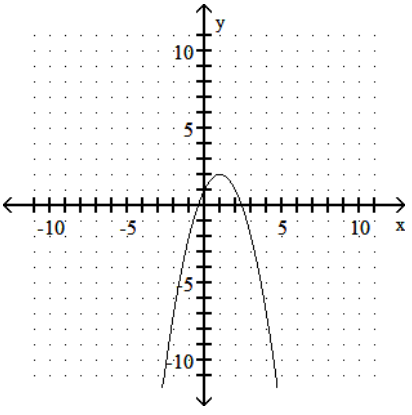
A) Vertex: (1, -2); Axis: x = 1;
Domain: $(-\infty, \infty)$; Range: $[0, \infty)$



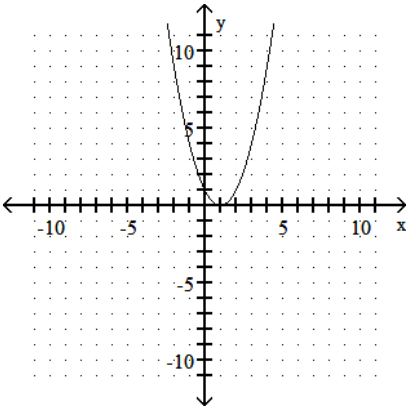
B) Vertex: (-1, 0); Axis: x = -1;
Domain: $(-\infty, \infty)$; Range: $[0, \infty)$



C) Vertex: (1, 2); Axis: x = 1;
Domain: $(-\infty, \infty)$; Range: $(-\infty, 2]$

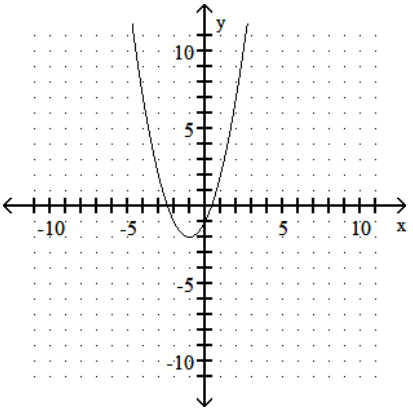


D) Vertex: (1, -2); Axis: x = 1;
Domain: $(-\infty, \infty)$; Range: $[0, \infty)$



Choose the equation that matches the graph.

97) 97) _____



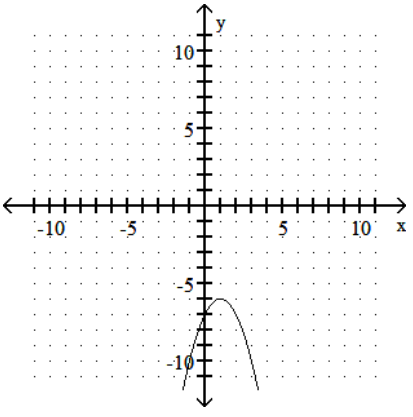
A) $f(x) = -x^2 + 2x - 1$

B) $f(x) = x^2 + 2x + 1$

C) $f(x) = x^2 - 2x - 1$

D) $f(x) = x^2 + 2x - 1$

98) 98) _____



A) $f(x) = -x^2 - 2x - 7$

B) $f(x) = x^2 - 2x - 7$

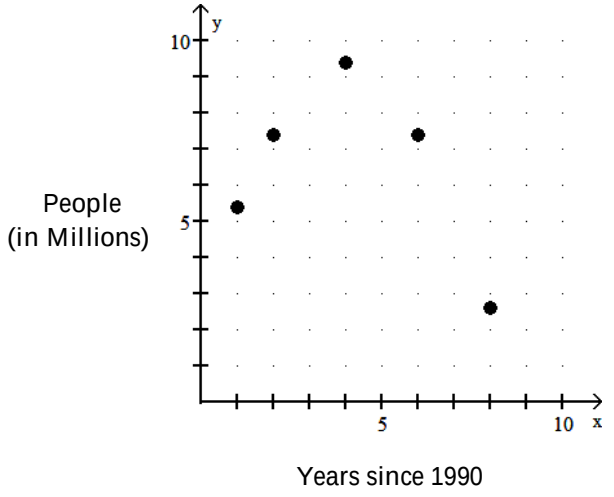
C) $f(x) = x^2 + 2x + 7$

D) $f(x) = -x^2 + 2x - 7$

Determine whether a linear or quadratic function would be a more appropriate model for the graphed data. If linear, tell whether the slope should be positive or negative. If quadratic, decide whether the coefficient a of x^2 should be positive or negative.

99) 99) _____

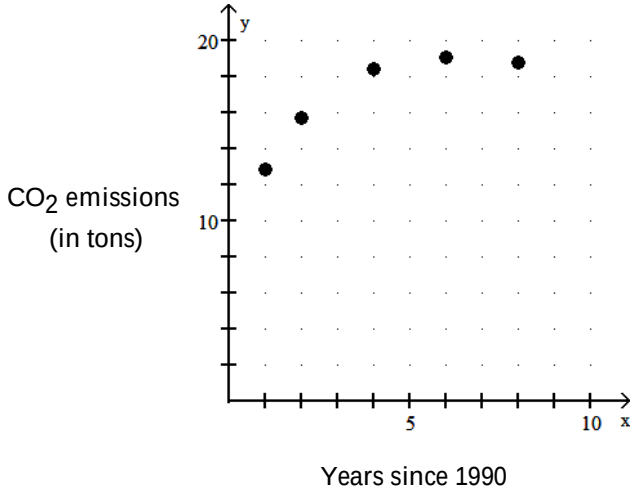
DENTAL FLOSS USE



A) Quadratic; positive
B) Quadratic; negative
C) Linear; negative
D) Linear; positive

100) 100) _____

POLLUTION



Use the ordered pairs (1, 12.85), (4, 18.4), and (8, 18.8) to find a quadratic function that models the data. Round the values of a, b, and c to two decimal places.

A) $y = -3.1x^2 - 0.25x + 10.00$
B) $y = -0.25x^2 + 3.10x + 10.00$
C) $y = 3.10x^2 - 0.25x + 10.00$
D) $y = 0.25x^2 + 3.10x + 10.00$

Answer Key
Testname: MAT85_MINCOMP_STUDYGUIDE_REVISED_F14

1) C
2) D
3) C
4) B
5) B
6) C
7) B
8) D
9) B
10) A
11) D
12) D
13) D
14) C
15) B
16) C
17) B
18) C
19) A
20) A
21) D
22) B
23) B
24) D
25) D
26) B
27) A
28) B
29) C
30) C
31) A
32) B
33) B
34) A
35) C
36) C
37) D
38) A
39) A
40) B
41) C
42) D
43) D
44) B
45) B
46) A
47) A
48) B
49) A
50) A

51) D
52) D
53) A
54) C
55) C
56) D
57) D
58) C
59) D
60) D
61) A
62) A
63) B
64) A
65) A
66) C
67) D
68) C
69) D
70) B
71) C
72) B
73) C
74) A
75) A
76) D
77) C
78) D
79) D
80) A
81) A
82) C
83) D
84) D
85) C
86) C
87) D
88) B
89) C
90) A
91) A
92) B
93) A
94) B
95) B
96) C
97) D
98) D
99) B
100) B