

Summer Work

Date _____ Period _____

Simplify each expression.

1) $a - 4 - 8a$

2) $-2m + 4 + 9m + 4$

3) $6m - 2(m + 8)$

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

5) $-\frac{15}{2}m\left(-\frac{14}{5}m + 1\right)$

6) $-\frac{5}{4}\left(-\frac{5}{4}r + 2\right)$

7) $8(a + 6) - 5(2a - 8)$

8) $-5(3 + x) - 5(-8 + x)$

Solve each equation for the indicated variable.

9) $cx = \frac{d}{r}$, for x

10) $xk = w - v$, for x

Solve each equation.

11) $14 + r = 14$

12) $11 + n = -3$

13) $15n = 195$

14) $v - 5 = 23$

15) $\frac{k}{11} = -\frac{14}{11}$

16) $19 = \frac{k}{13}$

17) $-416 = 26p$

18) $-462 = 77n$

19) $-22 = n - 81$

20) $-87 = -3(4 - 6m) + 7m$

21) $-3(5 - 8x) = -159$

22) $252 = 5(1 + 8r) + 7$

23) $-6(4x - 6) = -36 - 6x$

24) $7(5n - 7) + 6n = 25 + 4n$

25) $-(m + 4) = 4 - 2m$

26) $-7p - 11p = -5(6p + 12) + 4(9p - 9)$

27) $4 + 4(k - 3) = 6(k + 3)$

28) $-8(11x - 4) = -9x - 12(-12 + 6x)$

29) $-\frac{7}{5}\left(3p + \frac{11}{5}\right) = \frac{7}{12}\left(p - \frac{25}{7}\right)$

30) $-\frac{7}{4}r - \frac{23}{7}\left(-\frac{26}{7}r + 1\right) = -\frac{4}{5} + \frac{14}{3}\left(\frac{5}{8}r - 1\right)$

31) $\frac{15}{4}\left(\frac{7}{8}x + \frac{1}{3}\right) + \frac{5}{2}x = \frac{11}{2}\left(-\frac{11}{6}x + 1\right)$

Solve each proportion.

$$32) \frac{4}{8} = \frac{r}{3}$$

$$33) -\frac{7}{8} = \frac{x}{12}$$

$$34) \frac{3}{x} = -\frac{7}{5}$$

$$35) \frac{5}{m-1} = -\frac{8}{m+3}$$

$$36) \frac{p-9}{p+9} = \frac{11}{10}$$

$$37) -\frac{4}{r-2} = \frac{2}{r+4}$$

Simplify. Your answer should contain only positive exponents.

$$38) \left(\frac{(2^3)^{-4}}{2^3 \cdot (2^{-2})^4} \right)^{-2}$$

$$39) \frac{2^0 \cdot 2^{-4}}{(2^2)^{-2}}$$

$$40) \frac{2m^{-3} \cdot (m^3)^{-4}}{2m^4}$$

$$41) \frac{(2p^{-2})^3 \cdot p^4}{2p^0}$$

$$42) \frac{m^2 n^4 p^2}{2n^2 p^4 \cdot (m^{-4} n^4 p^3)^{-3}}$$

$$43) \frac{m^0}{(pm^0 q^{-3})^{-4} \cdot pm^4 q^{-2}}$$

Evaluate each function for the given value.

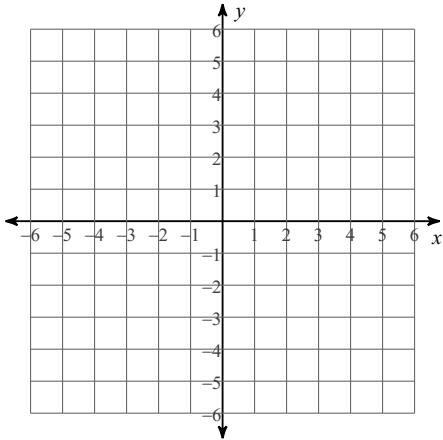
$$44) y = -2|x - 3|; \text{ Find } y \text{ at } x = 1$$

$$45) y = 2x + 2; \text{ Find } y \text{ at } x = -1$$

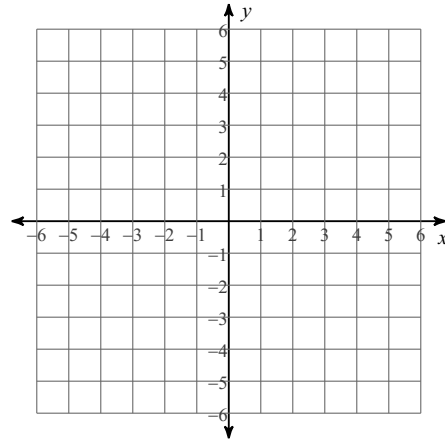
46) $y = x^2 - 5$; Find y at $x = -3$

Sketch the graph of each line.

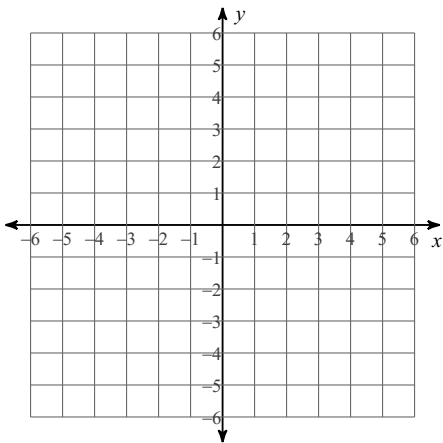
47) x -intercept = -2 , y -intercept = 5



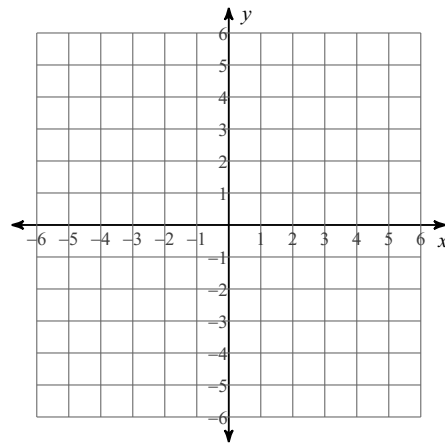
48) x -intercept = 5 , y -intercept = -3



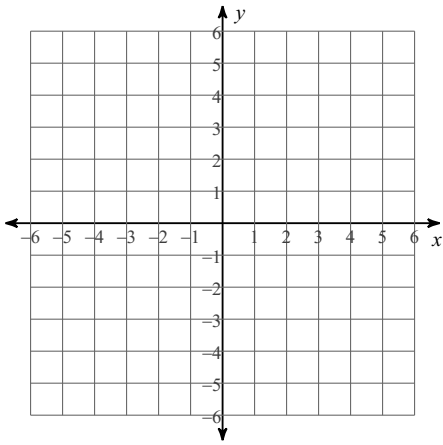
49) x -intercept = 2 , y -intercept = 3



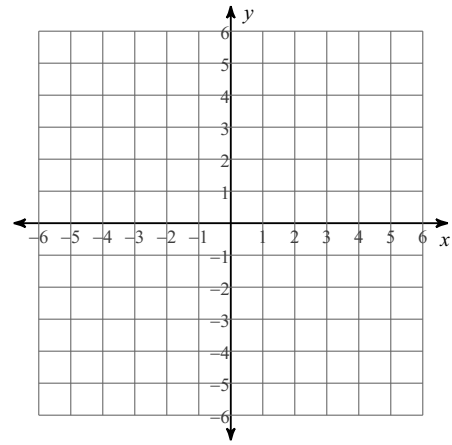
50) $x + y = -1$



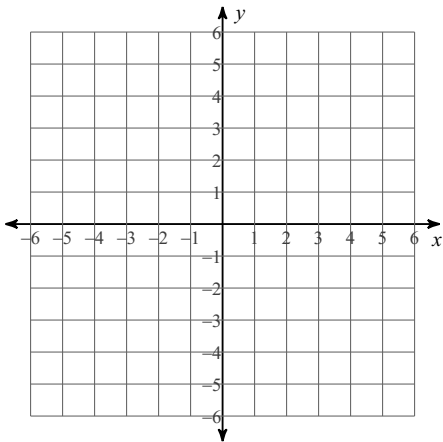
51) $x + y = 4$



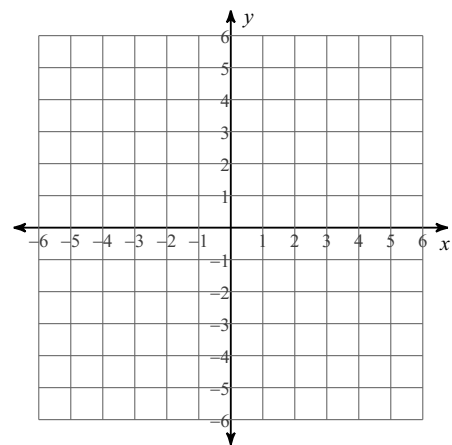
52) $8x + 3y = 15$



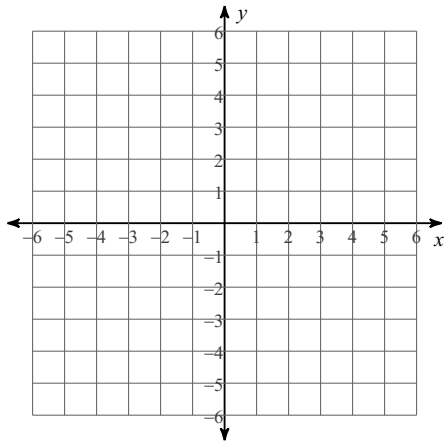
53) $y = -6x + 5$



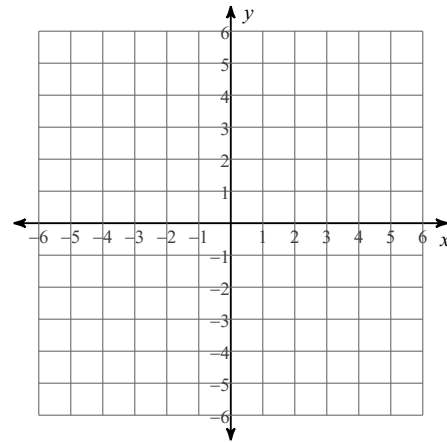
54) $y = -\frac{4}{5}x - 1$



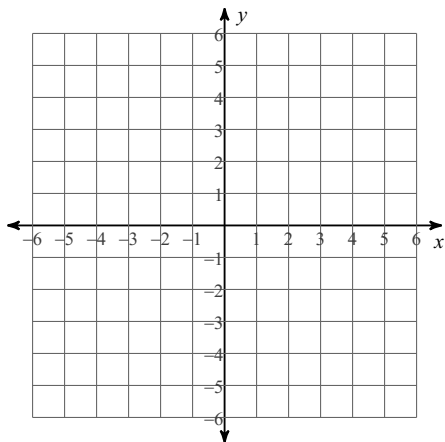
55) $y = 2x + 4$



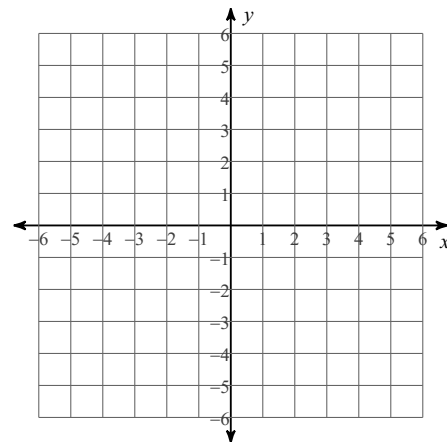
56) $5 - 5y + 4x = 0$



57) $-y = -1 + x$

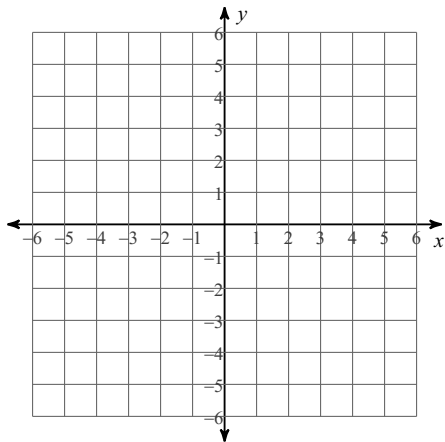


58) $5y + 2x + 10 = 0$

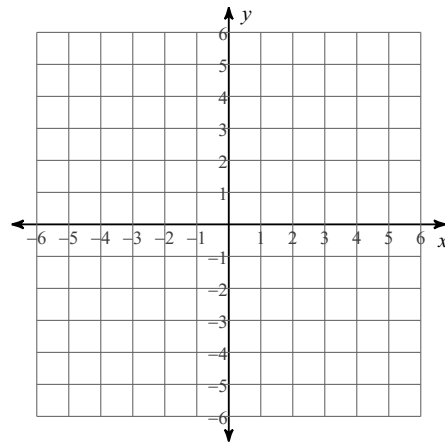


Sketch the graph of each linear inequality.

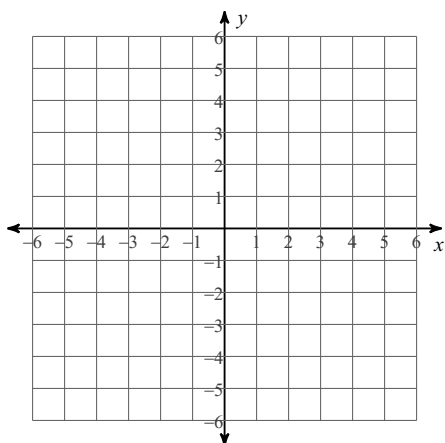
59) $y < -5$



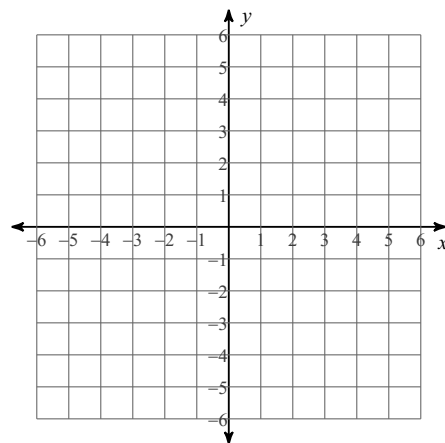
60) $y \leq -x + 3$



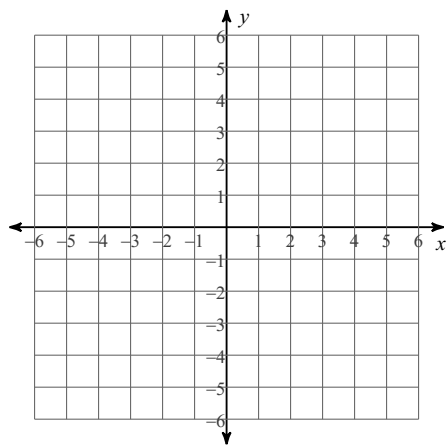
61) $y \leq \frac{9}{5}x + 5$



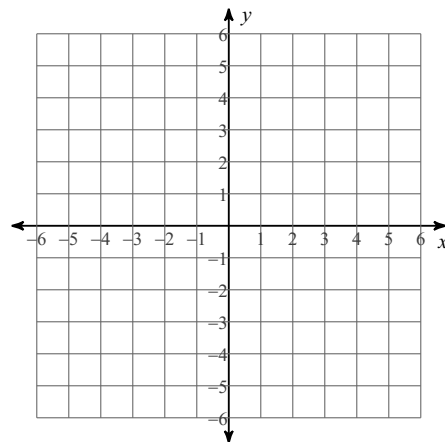
62) $x < -2$



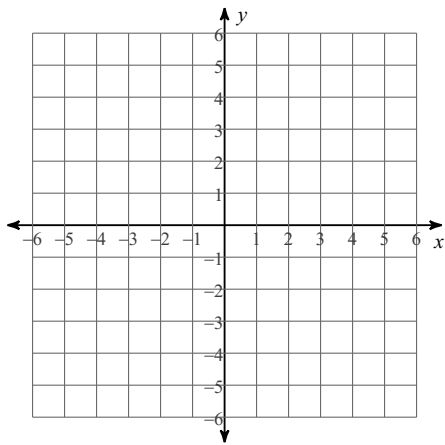
63) $y > -3x + 4$



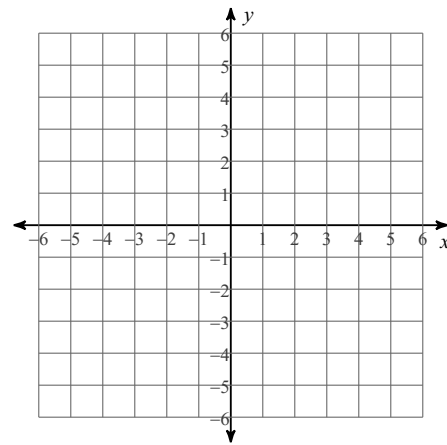
64) $y < -\frac{4}{3}x - 3$



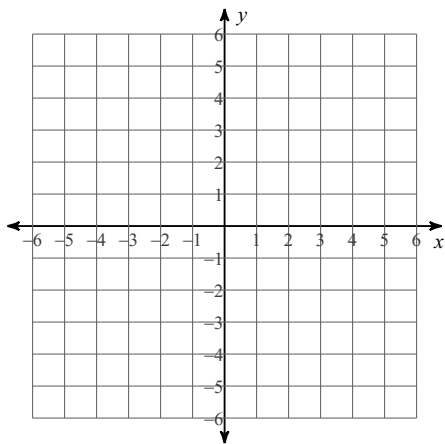
65) $x + y \leq -2$



66) $y > -3$

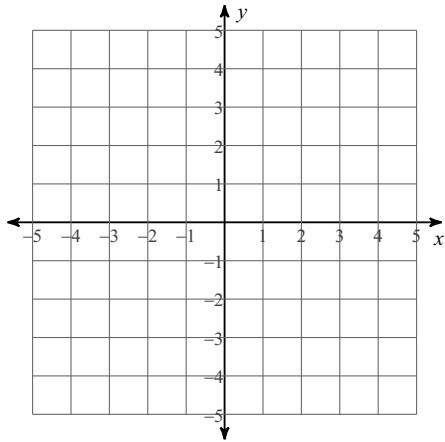


67) $x + y < -3$

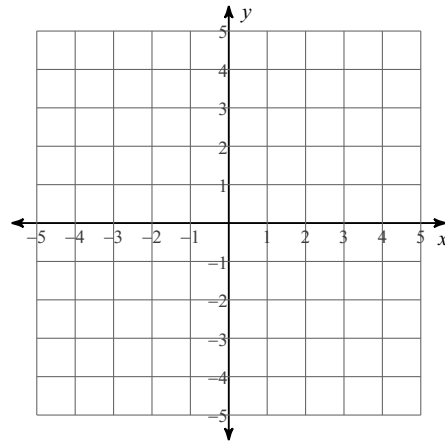


Solve each system by graphing.

$$68) \quad y = -\frac{1}{3}x - 3$$
$$y = -\frac{7}{3}x + 3$$

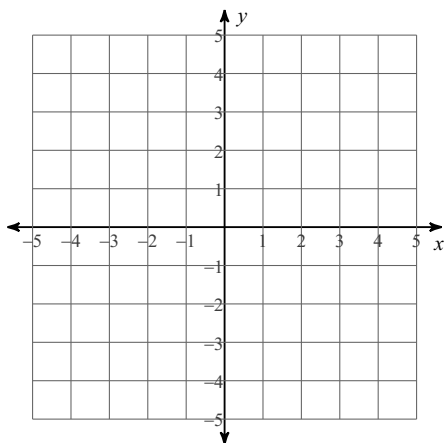


$$69) \quad y = 2x + 4$$
$$y = \frac{1}{4}x - 3$$



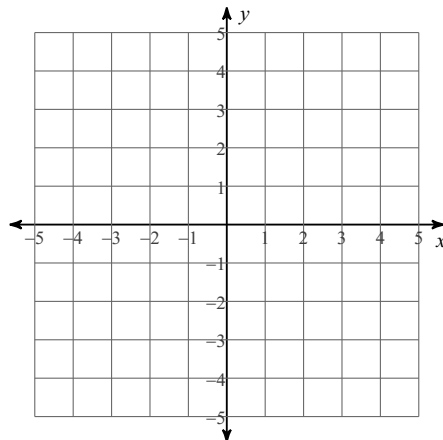
$$70) \frac{3}{8}x = -3 - \frac{3}{4}y$$

$$-\frac{4}{5}y = -x - \frac{12}{5}$$



$$71) -y - 3 = -x$$

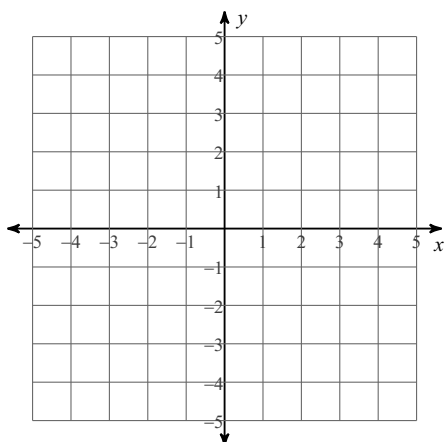
$$0 = -2x - y + 3$$



Sketch the solution to each system of inequalities.

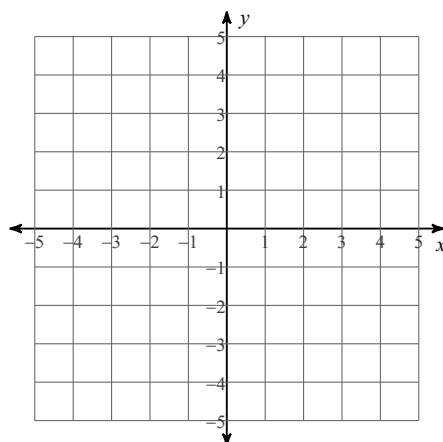
$$72) y \leq x - 2$$

$$y \leq 4x + 1$$



$$73) y \geq x + 3$$

$$y \geq -x - 1$$



Evaluate each expression.

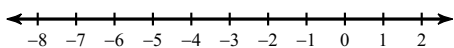
$$74) \frac{5 - (-9)}{(-8) - (-6)}$$

$$75) (-6) - (6^2 - (-1))$$

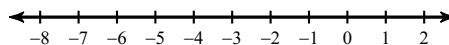
$$76) \frac{5 \times 2}{-5}$$

Solve each inequality and graph its solution.

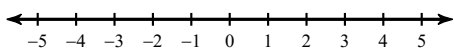
$$77) 9x < -54$$



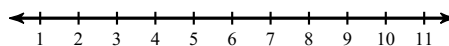
$$78) -\frac{1}{2} \leq \frac{n}{2}$$



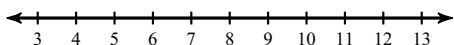
$$79) \frac{n}{19} < \frac{1}{19}$$



$$80) -7(3p + 6) \leq -189$$

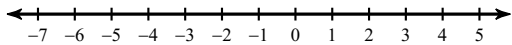


$$81) 106 > 4(8 + 4n) - 6$$

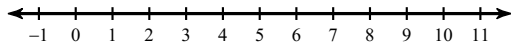


Solve each compound inequality and graph its solution.

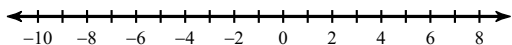
82) $3n < 9$ and $5n \geq 5$



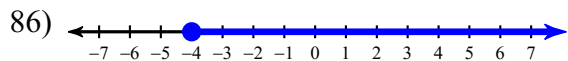
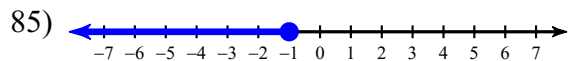
83) $-9 + n \leq -5$ or $-8n \leq -56$



84) $-1 \leq \frac{p}{7} < 1$

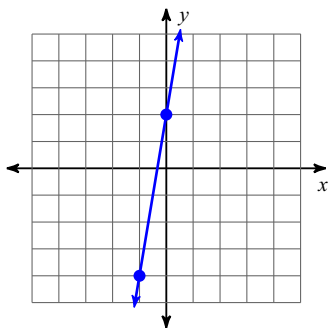


Write an inequality for each graph.

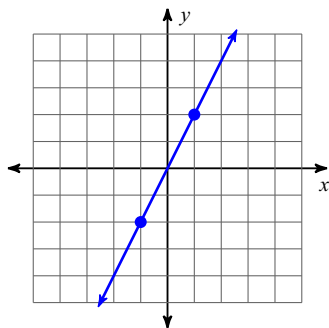


Find the slope of each line.

87)

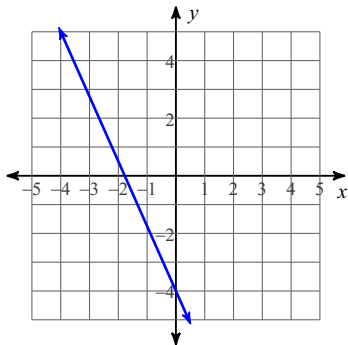


88)

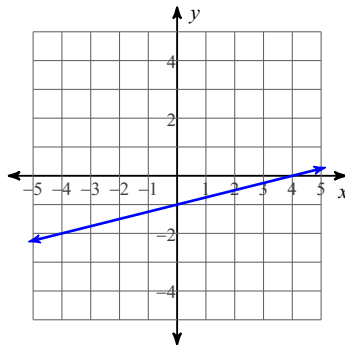


Write the slope-intercept form of the equation of each line.

89)



90)



Write the slope-intercept form of the equation of each line given the slope and y-intercept.

91) Slope = $-\frac{1}{2}$, y-intercept = -3

92) Slope = $-\frac{5}{4}$, y-intercept = 0

Write the slope-intercept form of the equation of each line.

93) $x + 6y = -42$

94) $9x - 4y = -39$

95) $y + 3 = x - 1$

96) $y - 3 = -(x + 2)$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

97) through: $(-4, -2)$, slope = $\frac{3}{4}$

98) through: $(2, 0)$, slope = $\frac{5}{2}$

Write the slope-intercept form of the equation of the line through the given points.

99) through: $(0, 2)$ and $(2, 4)$

100) through: $(-5, -5)$ and $(1, -3)$

Write the slope-intercept form of the equation of the line described.

101) through: $(4, -1)$, parallel to $y = -\frac{1}{4}x + 2$

102) through: $(1, 2)$, parallel to $y = 3x - 4$

103) through: $(3, -4)$, perp. to $y = -3x$

104) through: $(1, 1)$, perp. to $x = 0$

Write the point-slope form of the equation of the line described.

105) through: $(5, 0)$, perp. to $y = -\frac{5}{3}x - 5$

106) through: $(2, -3)$, perp. to $y = \frac{2}{5}x + 2$

Write the standard form of the equation of the line through the given points.

107) through: $(-3, 2)$ and $(1, -2)$

108) through: $(3, 0)$ and $(3, 4)$

Find each product.

109) $(8k - 4)(2k - 1)$

110) $(6x + 1)(x + 1)$

111) $7(4k^2 + 6k + 8)$

112) $5(2x^2 - 7x + 2)$

113) $(7b + 3)(3b^2 + 4b - 1)$

114) $(8k + 1)(8k^2 + 7k - 5)$

115) $(5k^2 + 4k - 3)(6k^2 - 4k + 7)$

116) $(4x^2 + x + 8)(6x^2 - x + 6)$

Simplify each expression.

117) $(2p^2 + 1 - 5p^4) + (6p^3 + 2p^4 - 5)$

118) $(6 - 5m^3 - m^4) + (5 - 4m + 6m^4)$

119) $(2x^4 + 6x - 1) + (4x^4 - 5x - 7x^2)$

Solve each proportion.

120) $\frac{5}{6} = \frac{4}{n}$

121) $\frac{3}{6} = \frac{n}{8}$

122) $\frac{7}{6} = \frac{r}{2}$

123) $\frac{7}{x} = \frac{3}{7}$

124) $\frac{m}{5} = \frac{2}{6}$

125) $\frac{9}{x} = \frac{5}{4}$

Solve each equation by factoring.

126) $(8x - 3)(7x - 2) = 0$

127) $(x - 5)(3x - 5) = 0$

$$128) (a + 4)(a - 8) = 0$$

$$129) x^2 + 3x - 4 = 0$$

$$130) x^2 - x - 42 = 0$$

$$131) n^2 + n - 20 = 0$$

$$132) 3b^2 - b - 24 = 0$$

$$133) 2v^2 - v = 0$$

$$134) 7k^2 + 33k - 10 = 0$$

$$135) 3m^2 + 7m - 17 = 3$$

$$136) 5x^2 - 26x + 8 = 3$$

$$137) 3p^2 - 10p - 21 = 4$$

$$138) 15n^2 + 28n = 32$$

$$139) 2n^2 - 9n = 35$$

$$140) 5x^2 - 2x = 16$$

$$141) 11v^2 + 13v + 3 = 5v^2 - 3$$

$$142) 43x^2 - 42x + 8 = -6x^2$$

$$143) 5b^2 - 5b - 7 = -b^2 - 7$$

$$144) -v^2 - 8v = -6v^2$$

Solve each equation by taking square roots.

145) $-7 - 2n^2 = -55$

146) $6x^2 - 3 = 417$

Simplify.

147) $3\sqrt{6} + 3\sqrt{54} - 2\sqrt{54}$

148) $-\sqrt{24} + 2\sqrt{8} + 2\sqrt{6}$

Solve each equation. Remember to check for extraneous solutions.

149) $-3 = -4 + \sqrt{\frac{x}{4}}$

150) $7\sqrt{-5 - 15p} = 70$

Answers to Summer Work (ID: 1)

1) $-7a - 4$

2) $7m + 8$

3) $4m - 16$

4) $-3x + 4$

5) $-\frac{15}{2}m + 21m^2$

6) $-\frac{5}{2} + \frac{25}{16}r$

7) $-2a + 88$

8) $25 - 10x$

9) $x = \frac{d}{cr}$

10) $x = \frac{w - v}{k}$

11) $\{0\}$

12) $\{-14\}$

13) $\{13\}$

14) $\{28\}$

15) $\{-14\}$

16) $\{247\}$

17) $\{-16\}$

18) $\{-6\}$

19) $\{59\}$

20) $\{-3\}$

21) $\{-6\}$

22) $\{6\}$

23) $\{4\}$

24) $\{2\}$

25) $\{8\}$

26) $\{4\}$

27) $\{-13\}$

28) $\{-16\}$

29) $\left\{-\frac{299}{1435}\right\}$

30) $\left\{-\frac{1603}{5540}\right\}$

31) $\left\{\frac{408}{1523}\right\}$

32) $\{1.5\}$

33) $\{-10.5\}$

34) $\{-2.14\}$

35) $\{-0.54\}$

36) $\{-189\}$

37) $\{-2\}$

38) 2^{14}

39) 1

40) $\frac{1}{m^{19}}$

41) $\frac{4}{p^2}$

42) $\frac{n^{14}p^7}{2m^{10}}$

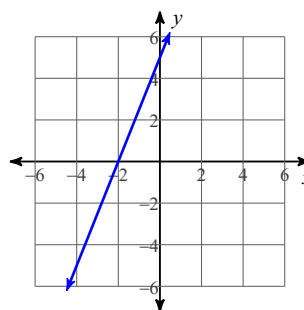
43) $\frac{p^3}{q^{10}m^4}$

44) -4

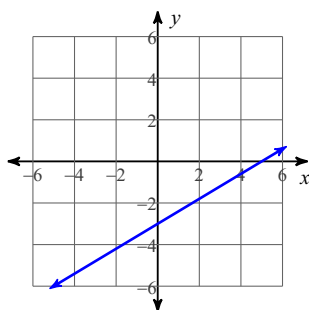
45) 0

46) 4

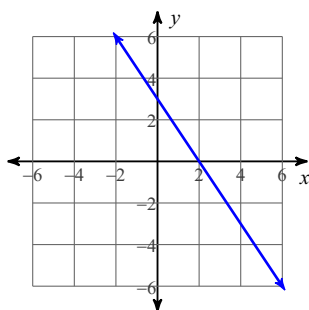
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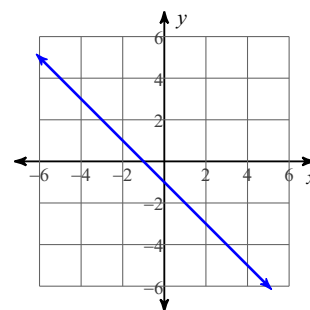
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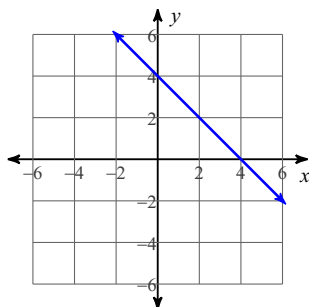
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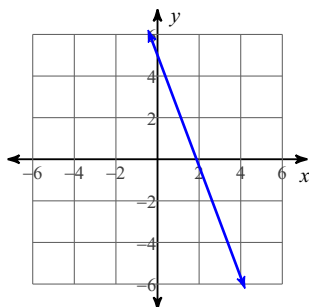
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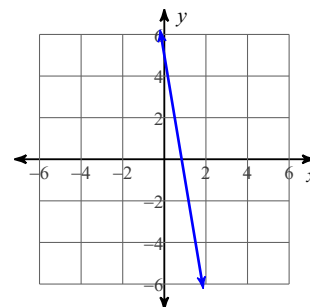
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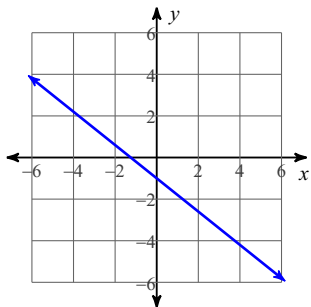
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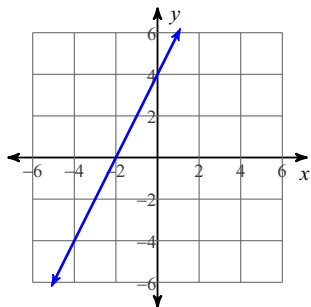
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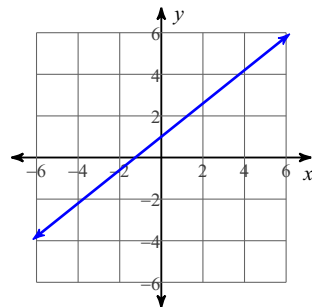
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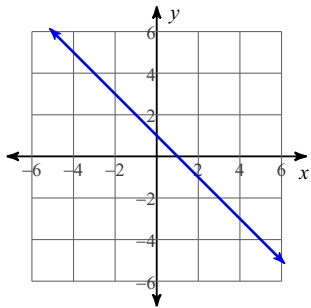
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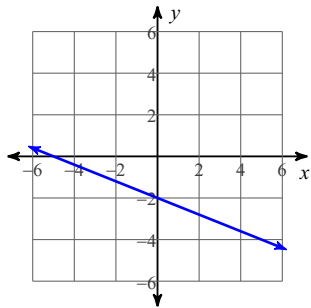
56)



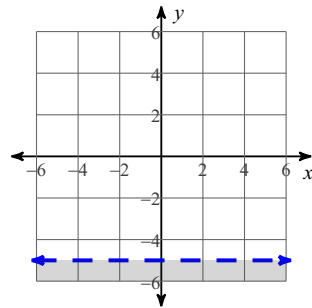
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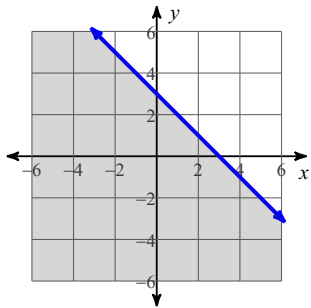
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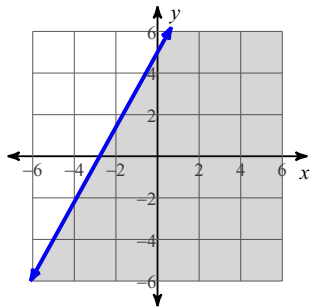
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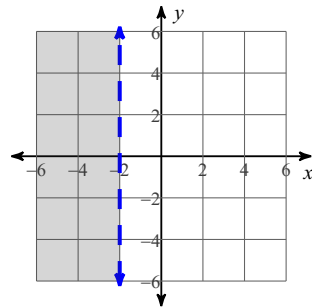
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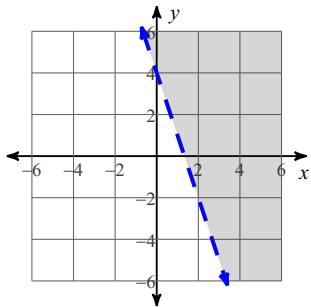
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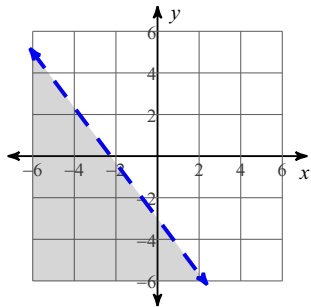
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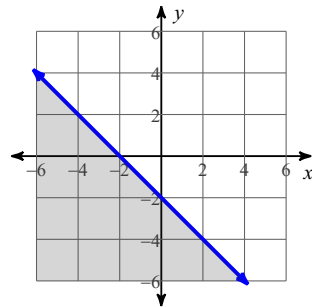
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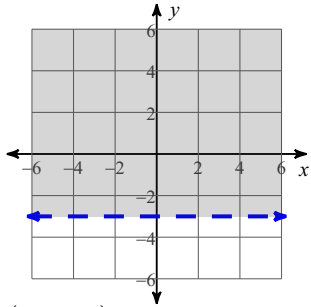
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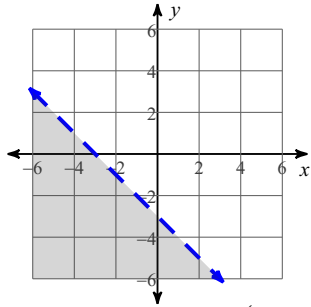
65)



66)



67)



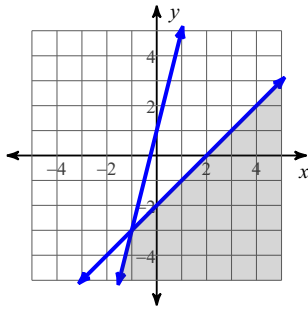
68) $(3, -4)$

69) $(-4, -4)$

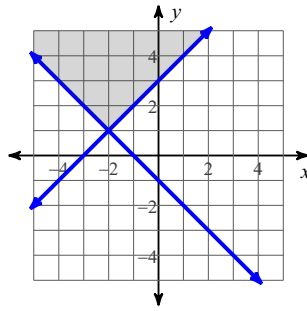
70) $(-4, -2)$

71) $(2, -1)$

72)



73)

74) -7 75) -43 76) -2 77) $x < -6$: 78) $n \geq -1$: 79) $n < 1$: 80) $p \geq 7$: 81) $n < 5$: 82) $1 \leq n < 3$: 83) $n \leq 4$ or $n \geq 7$: 84) $-7 \leq p < 7$: 85) $n \leq -1$ 86) $n \geq -4$

87) 6

88) 2

89) $y = -\frac{9}{4}x - 4$ 90) $y = \frac{1}{4}x - 1$ 91) $y = -\frac{1}{2}x - 3$ 92) $y = -\frac{5}{4}x$ 93) $y = -\frac{1}{6}x - 7$ 94) $y = \frac{9}{4}x + \frac{39}{4}$ 95) $y = x - 4$ 96) $y = -x + 1$ 97) $y = \frac{3}{4}x + 1$ 98) $y = \frac{5}{2}x - 5$ 99) $y = x + 2$ 100) $y = \frac{1}{3}x - \frac{10}{3}$ 101) $y = -\frac{1}{4}x$ 102) $y = 3x - 1$ 103) $y = \frac{1}{3}x - 5$ 104) $y = 1$ 105) $y = \frac{3}{5}(x - 5)$ 106) $y + 3 = -\frac{5}{2}(x - 2)$ 107) $x + y = -1$ 108) $x = 3$ 109) $16k^2 - 16k + 4$ 110) $6x^2 + 7x + 1$ 111) $28k^2 + 42k + 56$ 112) $10x^2 - 35x + 10$ 113) $21b^3 + 37b^2 + 5b - 3$ 114) $64k^3 + 64k^2 - 33k - 5$ 115) $30k^4 + 4k^3 + k^2 + 40k - 21$ 116) $24x^4 + 2x^3 + 71x^2 - 2x + 48$ 117) $-3p^4 + 6p^3 + 2p^2 - 4$ 118) $5m^4 - 5m^3 - 4m + 11$ 119) $6x^4 - 7x^2 + x - 1$ 120) $\{4.8\}$ 121) $\{4\}$ 122) $\{2.33\}$ 123) $\{16.33\}$ 124) $\{1.67\}$ 125) $\{7.2\}$ 126) $\left\{\frac{3}{8}, \frac{2}{7}\right\}$ 127) $\left\{5, \frac{5}{3}\right\}$ 128) $\{-4, 8\}$ 129) $\{1, -4\}$ 130) $\{7, -6\}$ 131) $\{4, -5\}$ 132) $\left\{-\frac{8}{3}, 3\right\}$ 133) $\left\{\frac{1}{2}, 0\right\}$ 134) $\left\{\frac{2}{7}, -5\right\}$ 135) $\left\{\frac{5}{3}, -4\right\}$ 136) $\left\{\frac{1}{5}, 5\right\}$ 137) $\left\{-\frac{5}{3}, 5\right\}$ 138) $\left\{-\frac{8}{3}, \frac{4}{5}\right\}$ 139) $\left\{-\frac{5}{2}, 7\right\}$ 140) $\left\{-\frac{8}{5}, 2\right\}$ 141) $\left\{-\frac{3}{2}, -\frac{2}{3}\right\}$ 142) $\left\{\frac{2}{7}, \frac{4}{7}\right\}$ 143) $\left\{\frac{5}{6}, 0\right\}$ 144) $\left\{\frac{8}{5}, 0\right\}$ 145) $\{4.899, -4.899\}$ 146) $\{8.367, -8.367\}$ 147) $6\sqrt{6}$ 148) $4\sqrt{2}$ 149) $\{4\}$ 150) $\{-7\}$