

Summer 2018 Packet

Simplify each expression.

1) $10(1 - 10x) - 9$

2) $-3(1 - 10x) - 9x$

3) $-8 + 4(9 - 10x)$

4) $10b + 9(b + 7)$

5) $-3b(3b + 4) + 10b^2$

6) $-5(-2v - 7) + 2(-6 + 6v)$

7) $-10(-n + 1) + 2n(8n - 5)$

8) $-6(-r - 4) - 5r(10 + 5r)$

9) $-2b(b + 4) - 6(10 - 5b)$

10) $10(3 - 8m) - 2(m - 8)$

Write each as an algebraic expression.

11) n increased by 6 is greater than or equal to 42

12) 10 more than a number is 34

13) twice z is greater than 43

14) 7 more than a number is 17

15) the sum of a number and 10 is 13

16) 11 more than a number is 41

17) twice x is less than 8

18) the sum of a number and 5 is greater than or equal to 25

19) the difference of a number and 9 is greater than or equal to 26

20) the 10th power of n is equal to 40

Solve each equation.

21) $15 = 7n + 8n$

22) $7 = -3m + 4m$

23) $-6b - 3b = 9$

24) $\frac{53}{30} = k - \frac{1}{2} + \frac{3}{5}$

25) $-\frac{31}{7} = -\frac{7}{4}n - \frac{11}{7}n$

26) $3(2n - 2) + 2 = 32$

27) $0 = -8(x + 3) - 4x$

28) $-8 = -8(6 + x)$

29) $-20 = -5(-3x + 1)$

30) $2(8n - 3) = -6$

31) $5m - 20 = -2(1 - 4m)$

32) $1 - (7 + 5x) = 8x - 32$

33) $5(5a - 1) = 5a - 25$

34) $2(-2n + 3) = 11 + n$

35) $6(3x + 8) = 2x$

36) $6(x + 2) + 5(4x - 4) = -60$

37) $-5(m + 5) - 2(4m - 3) = -58$

38) $-3 = 5(1 + 7x) - 4(2 - 6x)$

39) $-7(2 + b) - 7(3 + 5b) = 49$

40) $-4(1 - 7n) + 8(3n - 3) = -80$

41) $-(3 - 4p) - (2 - 7p) = 5p + 5p$

42) $2(7a + 7) = -4(1 - 4a)$

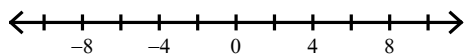
43) $-3(v - 3) = -4(1 + v)$

44) $4(n + 7) = 3(2 - 6n)$

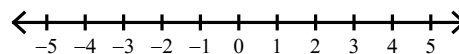
45) $-3(5n + 4) = -4n + 8(6 - 2n)$

Solve each inequality and graph its solution.

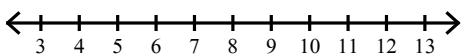
46) $-n - 8 \geq -n - 3$



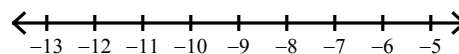
47) $k \leq -3k - 4k$



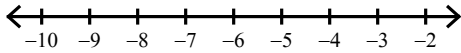
48) $1 - 8x < -7x - 7$



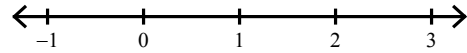
49) $x + 4x \leq 6x + 8$



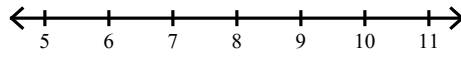
$$50) 3m - 4 - 2m \geq 6 + 3m$$



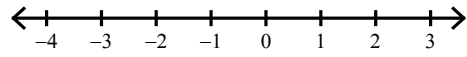
$$51) -65 \geq -5 - 6(8p + 2)$$



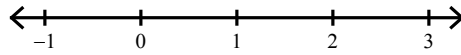
$$52) -5(m - 1) \geq -30$$



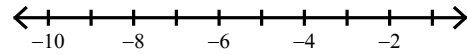
$$53) 42 \geq -7(1 - 7k)$$



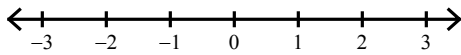
$$54) 8(x + 8) < 72$$



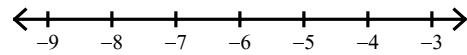
$$55) 6(b + 1) \geq -30$$



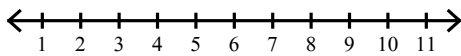
$$56) -31 - v < 5(v - 5)$$



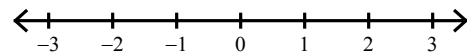
$$57) 7 + 2n \leq -3(n + 6)$$



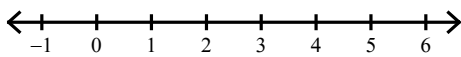
$$58) 7(x - 8) \leq -2 - 2x$$



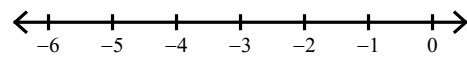
$$59) -5r + 34 \leq 6(3r + 2) - 1$$



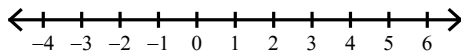
$$60) -8k + 2 < 6(k - 8) - 6$$



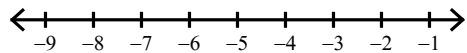
$$61) -6 - 3(3b + 1) > -(b - 7)$$



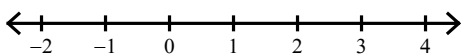
$$62) 4(2 - 7x) \geq -2 - 2(x + 8)$$



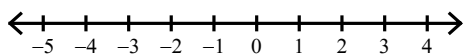
$$63) 3(x + 6) > -4 - 5(x + 2)$$



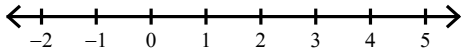
$$64) -5(8x - 7) + 6x \leq 7(3x + 5)$$



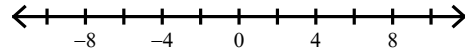
$$65) -6(x - 2) \leq -5x - (8x - 5)$$



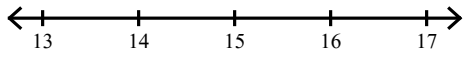
$$66) -3(v - 6) \leq 2v - 3(v - 6)$$



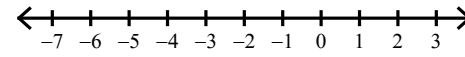
$$67) -3x + 16 \geq -3(x - 8)$$



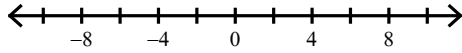
$$68) 5(6 + p) - 5 > 4 + 3(2 + 2p)$$



$$69) 8n - 2(5n + 8) > 2(n - 4)$$

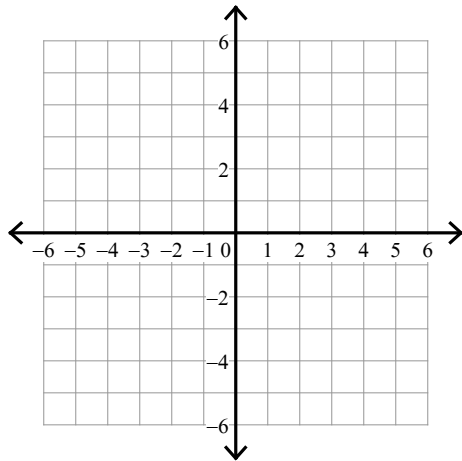


$$70) 6(x - 6) \leq -3 - 3(1 - 2x)$$

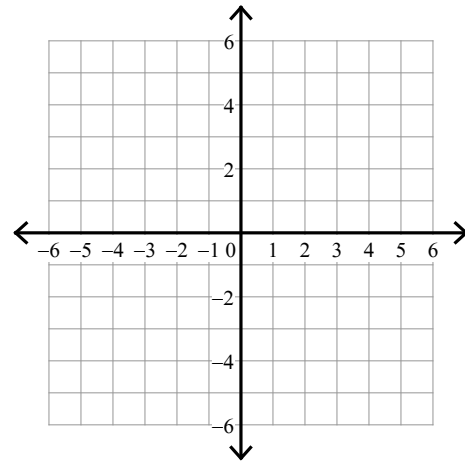


Sketch the graph of each line.

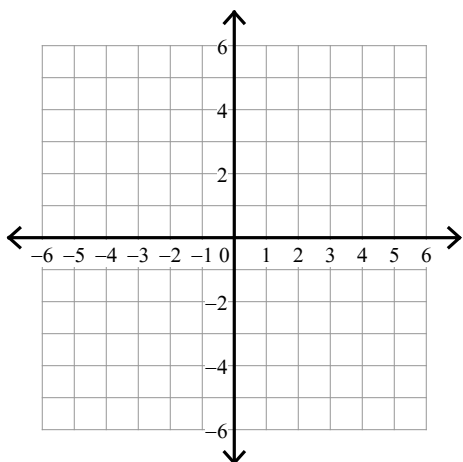
$$71) y = -\frac{5}{3}x$$



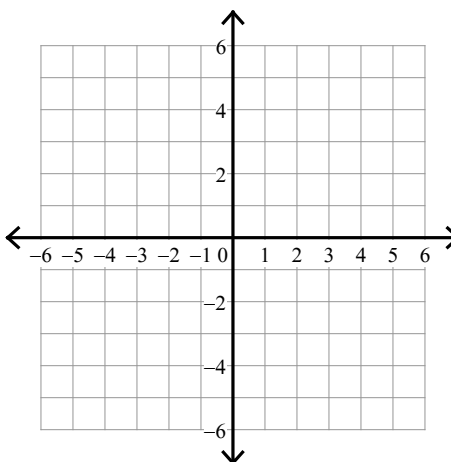
$$72) y = \frac{1}{2}x - 2$$



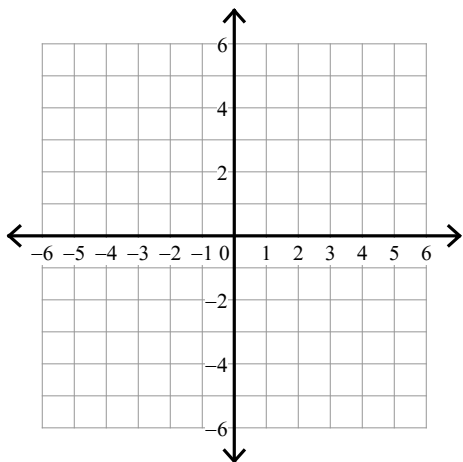
$$73) y = -\frac{7}{3}x - 2$$



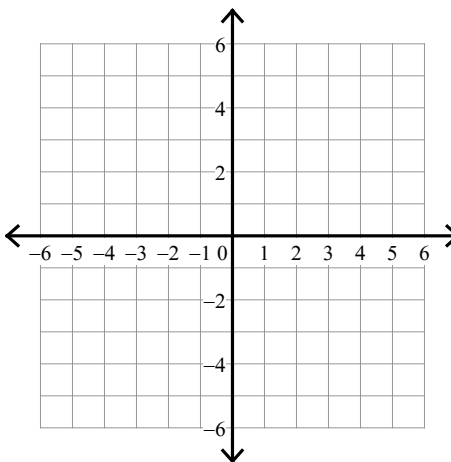
$$74) y = \frac{8}{5}x - 4$$



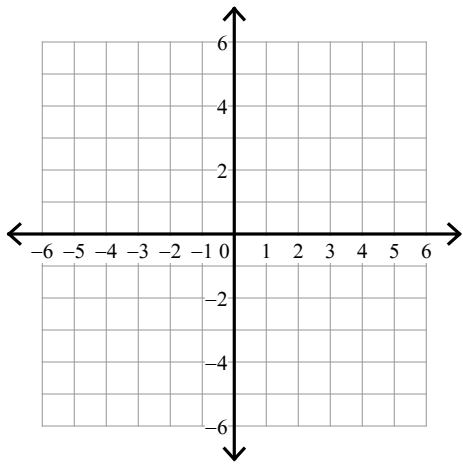
$$75) y = -x - 1$$



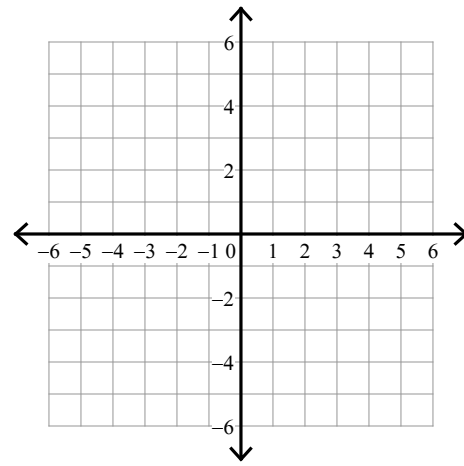
$$76) x - y = -1$$



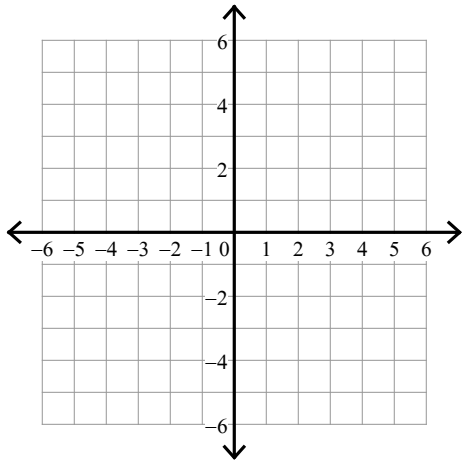
77) $5x - 2y = -6$



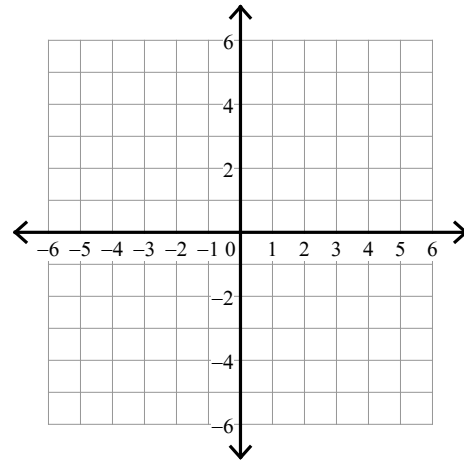
78) $7x + 3y = 9$



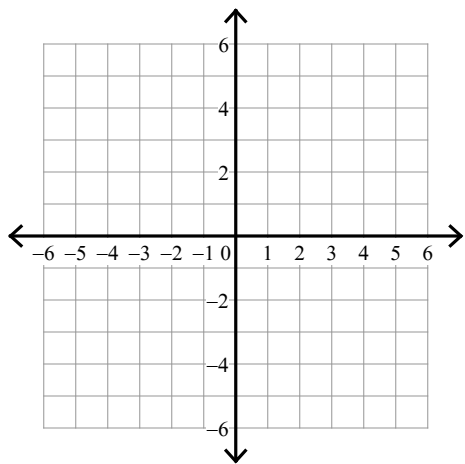
79) $x - 5y = -5$



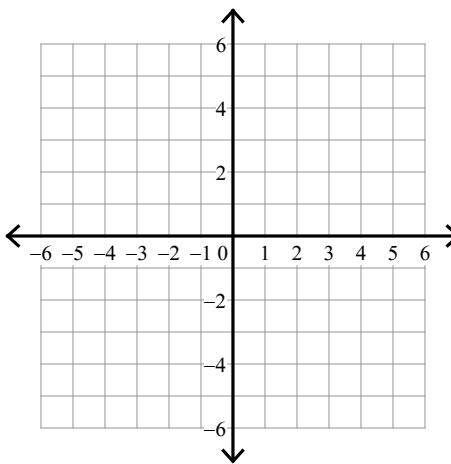
80) $x - 5y = -10$



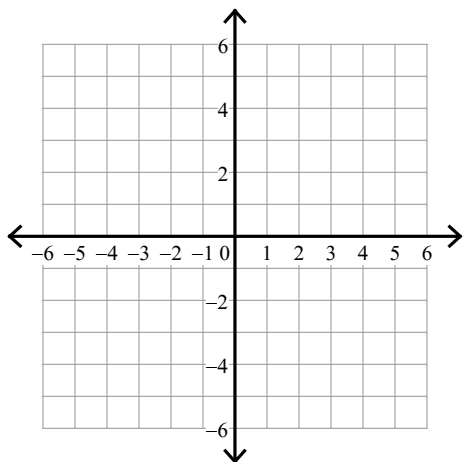
81) $2x = 3 + 3y$



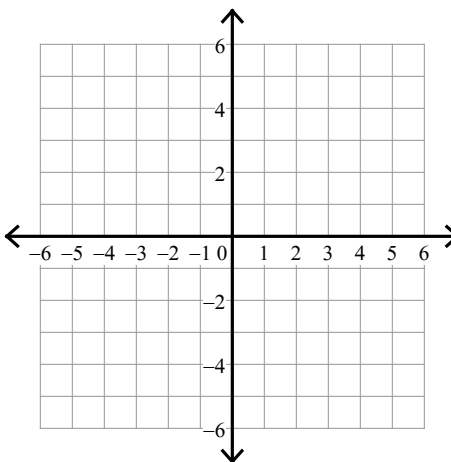
82) $y = -x$



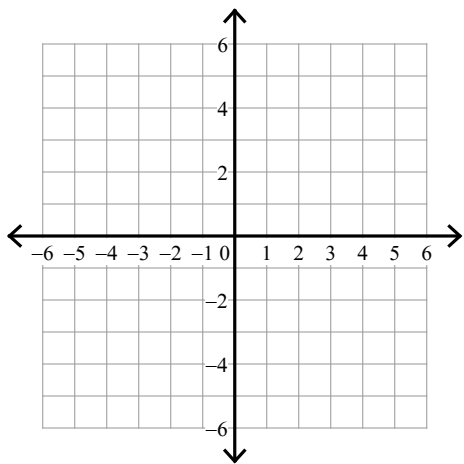
83) $-2 = -x - 2y$



84) $-2 = -x$

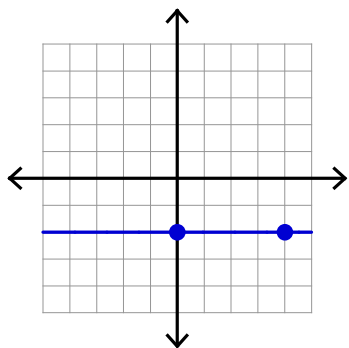


85) $9y + 3x = 27$

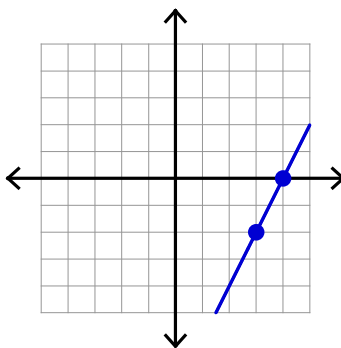


Find the slope of each line.

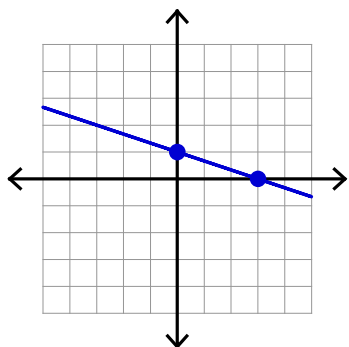
86)



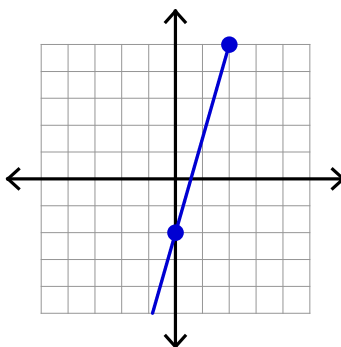
87)



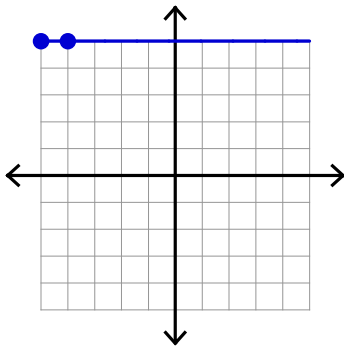
88)



89)



90)



Find the slope of the line through each pair of points.

91) $(-2, -7), (-9, 11)$

92) $(-19, 14), (4, -16)$

93) $(-8, 14), (18, 11)$

94) $(12, -16), (14, -14)$

95) $(-20, -13), (-14, -12)$

Find the slope of each line.

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

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

98) $y = -\frac{1}{4}x + 4$

99) $y = 6x + 5$

100) $y = -\frac{9}{4}x + 4$

Find the slope of a line parallel to each given line.

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

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

103) $y = 4x$

104) $x = 4$

105) $y = x - 1$

Find the slope of a line perpendicular to each given line.

106) $x = -2$

107) $y = \frac{5}{2}x + 4$

108) $y = \frac{2}{3}x + 4$

109) $y = -10x + 5$

110) $y = 1$

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

111) $4x + y = -4$

112) $y = -7$

113) $5x + 9y = 10$

114) $y = 7$

115) $x + 3y = -6$

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

116) Slope = $-\frac{1}{5}$, y-intercept = -2

117) Slope = $\frac{1}{2}$, y-intercept = 5

118) Slope = $\frac{3}{5}$, y-intercept = -1

119) Slope = $-\frac{2}{3}$, y-intercept = 0

120) Slope = -8 , y-intercept = -5

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

121) through: $(-1, 0)$ and $(-3, -4)$

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

123) through: $(-5, 5)$ and $(3, -4)$

124) through: $(-5, -3)$ and $(2, -3)$

125) through: $(-1, -2)$ and $(4, 4)$

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

126) through: $(4, -3)$, parallel to $y = -2x + 4$

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

128) through: $(1, 2)$, parallel to $y = 3x + 4$

129) through: $(3, 1)$, parallel to $y = \frac{1}{8}x - 5$

130) through: $(-4, 2)$, parallel to $y = -x + 5$

131) through: $(1, 0)$, perp. to $y = \frac{1}{4}x + 4$

132) through: $(0, -1)$, perp. to $y = -\frac{1}{4}x - 5$

133) through: $(-1, 0)$, perp. to $y = \frac{1}{4}x + 2$

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

135) through: $(-3, 2)$, perp. to $y = -\frac{3}{2}x + 1$

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Simplify each expression.

1) $10(1 - 10x) - 9$

$1 - 100x$

3) $-8 + 4(9 - 10x)$

$28 - 40x$

5) $-3b(3b + 4) + 10b^2$

$b^2 - 12b$

7) $-10(-n + 1) + 2n(8n - 5)$

$-10 + 16n^2$

9) $-2b(b + 4) - 6(10 - 5b)$

$-2b^2 + 22b - 60$

2) $-3(1 - 10x) - 9x$

$-3 + 21x$

4) $10b + 9(b + 7)$

$19b + 63$

6) $-5(-2v - 7) + 2(-6 + 6v)$

$22v + 23$

8) $-6(-r - 4) - 5r(10 + 5r)$

$-44r + 24 - 25r^2$

10) $10(3 - 8m) - 2(m - 8)$

$46 - 82m$

Write each as an algebraic expression.

11) n increased by 6 is greater than or equal to 42

$n + 6 \geq 42$

13) twice z is greater than 43

$2z > 43$

15) the sum of a number and 10 is 13

$n + 10 = 13$

17) twice x is less than 8

$2x < 8$

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$n + 5 \geq 25$

19) the difference of a number and 9 is greater than or equal to 26

$n - 9 \geq 26$

20) the 10th power of n is equal to 40

$n^{10} = 40$

12) 10 more than a number is 34

$n + 10 = 34$

14) 7 more than a number is 17

$n + 7 = 17$

16) 11 more than a number is 41

$n + 11 = 41$

Solve each equation.

21) $15 = 7n + 8n$

$\{1\}$

22) $7 = -3m + 4m$

$\{7\}$

$$23) -6b - 3b = 9$$

$$\{-1\}$$

$$24) \frac{53}{30} = k - \frac{1}{2} + \frac{3}{5} \quad \left\{ \frac{5}{3} \right\}$$

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$$\{6\}$$

$$27) 0 = -8(x + 3) - 4x$$

$$\{-2\}$$

$$28) -8 = -8(6 + x)$$

$$\{-5\}$$

$$29) -20 = -5(-3x + 1)$$

$$\{-1\}$$

$$30) 2(8n - 3) = -6$$

$$\{0\}$$

$$31) 5m - 20 = -2(1 - 4m)$$

$$\{-6\}$$

$$32) 1 - (7 + 5x) = 8x - 32$$

$$\{2\}$$

$$33) 5(5a - 1) = 5a - 25$$

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$$34) 2(-2n + 3) = 11 + n$$

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$$35) 6(3x + 8) = 2x$$

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$$36) 6(x + 2) + 5(4x - 4) = -60$$

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$$37) -5(m + 5) - 2(4m - 3) = -58$$

$$\{3\}$$

$$38) -3 = 5(1 + 7x) - 4(2 - 6x)$$

$$\{0\}$$

$$39) -7(2 + b) - 7(3 + 5b) = 49$$

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$$40) -4(1 - 7n) + 8(3n - 3) = -80$$

$$\{-1\}$$

$$41) -(3 - 4p) - (2 - 7p) = 5p + 5p$$

$$\{5\}$$

$$42) 2(7a + 7) = -4(1 - 4a)$$

$$\{9\}$$

$$43) -3(v - 3) = -4(1 + v)$$

$$\{-13\}$$

$$44) 4(n + 7) = 3(2 - 6n)$$

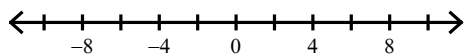
$$\{-1\}$$

$$45) -3(5n + 4) = -4n + 8(6 - 2n)$$

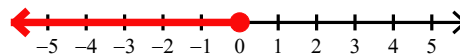
$$\{12\}$$

Solve each inequality and graph its solution.

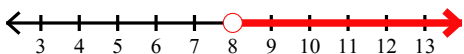
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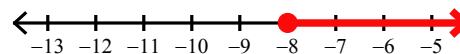
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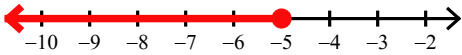
$$48) 1 - 8x < -7x - 7$$



$$49) x + 4x \leq 6x + 8$$



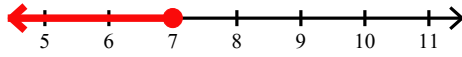
$$50) 3m - 4 - 2m \geq 6 + 3m$$



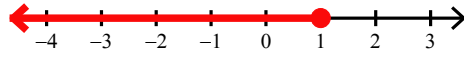
$$51) -65 \geq -5 - 6(8p + 2)$$



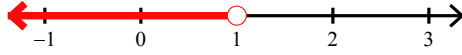
$$52) -5(m - 1) \geq -30$$



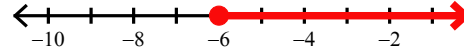
$$53) 42 \geq -7(1 - 7k)$$



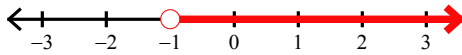
$$54) 8(x + 8) < 72$$



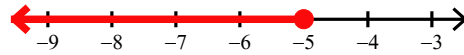
$$55) 6(b + 1) \geq -30$$



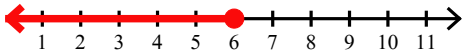
$$56) -31 - v < 5(v - 5)$$



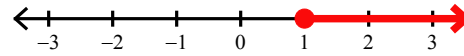
$$57) 7 + 2n \leq -3(n + 6)$$



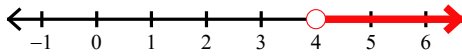
$$58) 7(x - 8) \leq -2 - 2x$$



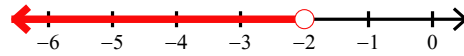
$$59) -5r + 34 \leq 6(3r + 2) - 1$$



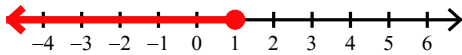
$$60) -8k + 2 < 6(k - 8) - 6$$



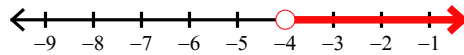
$$61) -6 - 3(3b + 1) > -(b - 7)$$



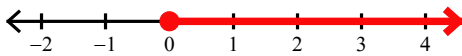
$$62) 4(2 - 7x) \geq -2 - 2(x + 8)$$



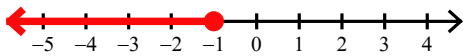
$$63) 3(x + 6) > -4 - 5(x + 2)$$



$$64) -5(8x - 7) + 6x \leq 7(3x + 5)$$



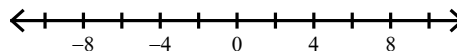
$$65) -6(x - 2) \leq -5x - (8x - 5)$$



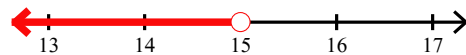
$$66) -3(v - 6) \leq 2v - 3(v - 6)$$



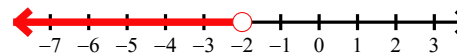
$$67) -3x + 16 \geq -3(x - 8)$$



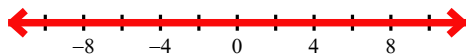
$$68) 5(6 + p) - 5 > 4 + 3(2 + 2p)$$



$$69) 8n - 2(5n + 8) > 2(n - 4)$$

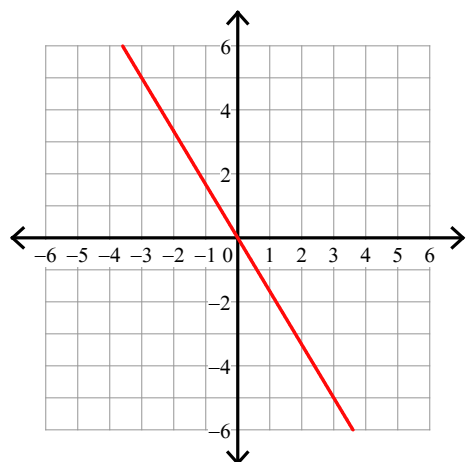


$$70) 6(x - 6) \leq -3 - 3(1 - 2x)$$

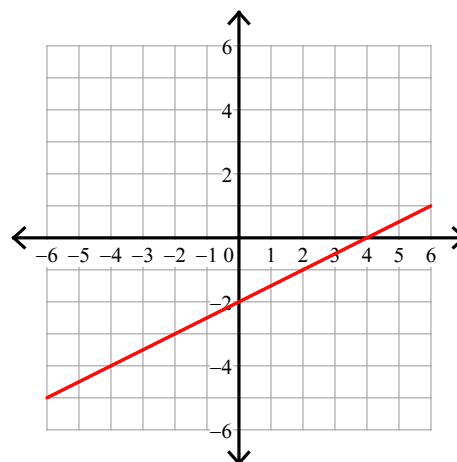


Sketch the graph of each line.

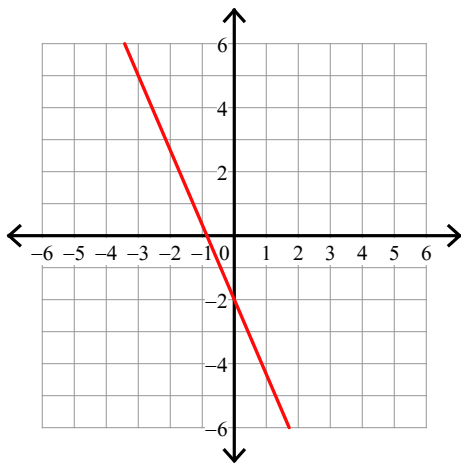
$$71) y = -\frac{5}{3}x$$



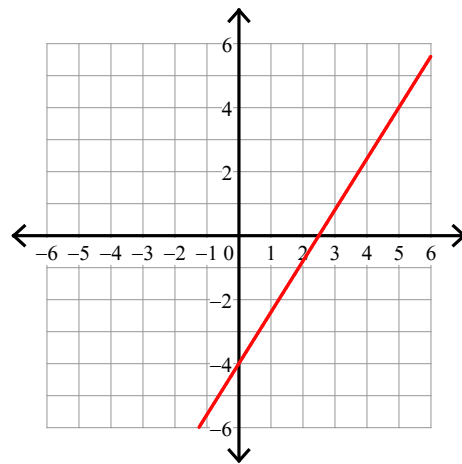
$$72) y = \frac{1}{2}x - 2$$



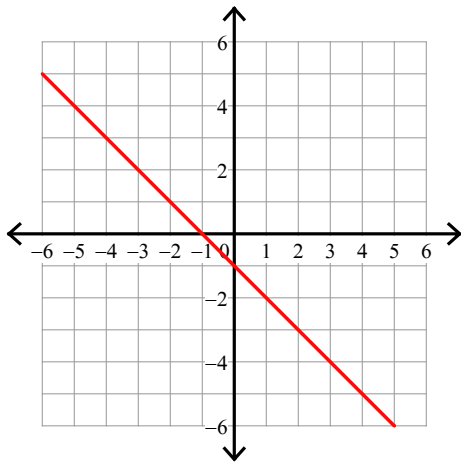
$$73) y = -\frac{7}{3}x - 2$$



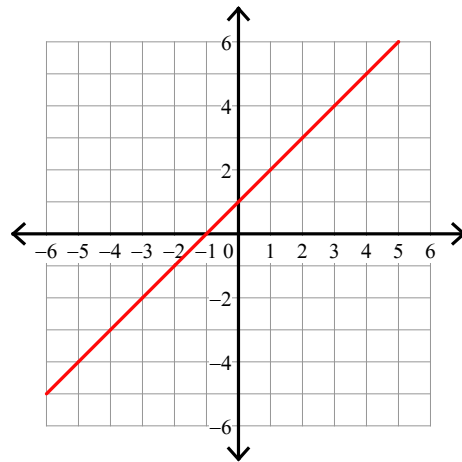
$$74) y = \frac{8}{5}x - 4$$



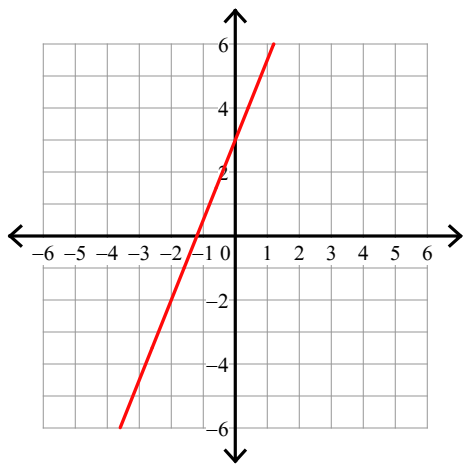
$$75) y = -x - 1$$



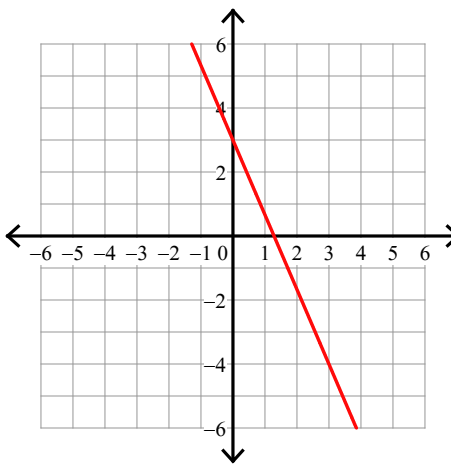
$$76) x - y = -1$$



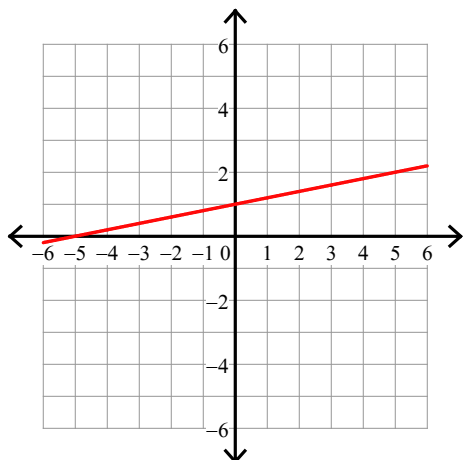
77) $5x - 2y = -6$



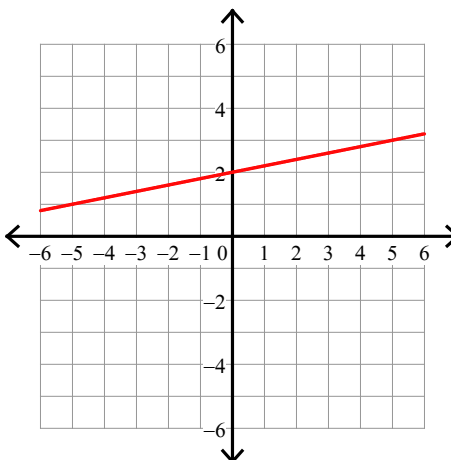
78) $7x + 3y = 9$



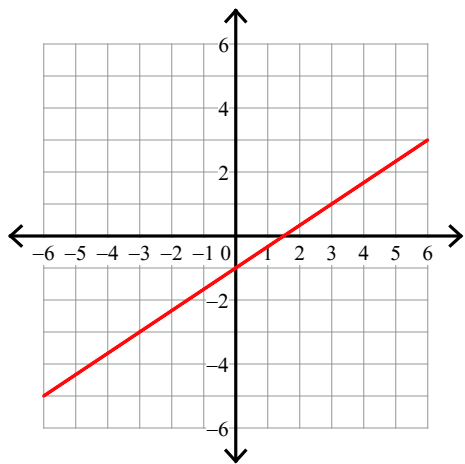
79) $x - 5y = -5$



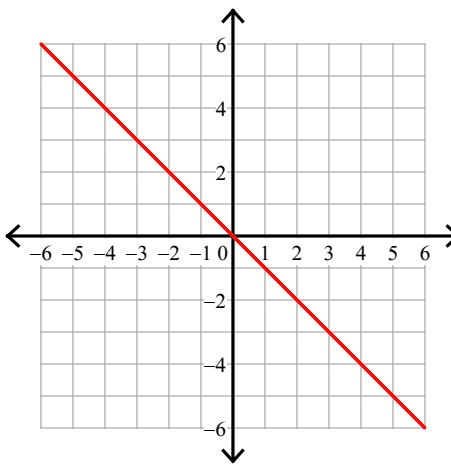
80) $x - 5y = -10$



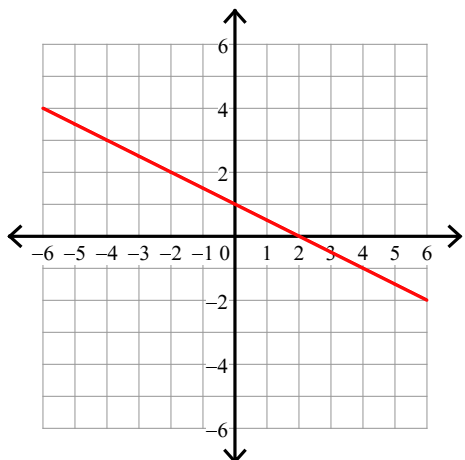
81) $2x = 3 + 3y$



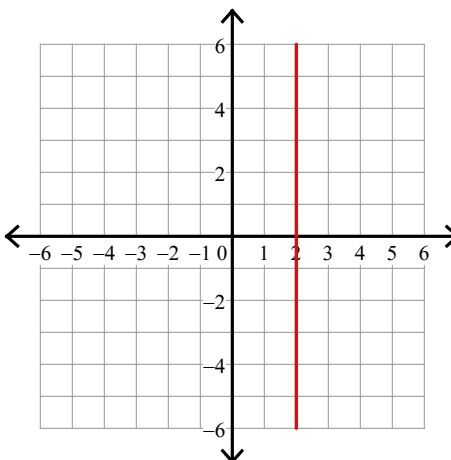
82) $y = -x$



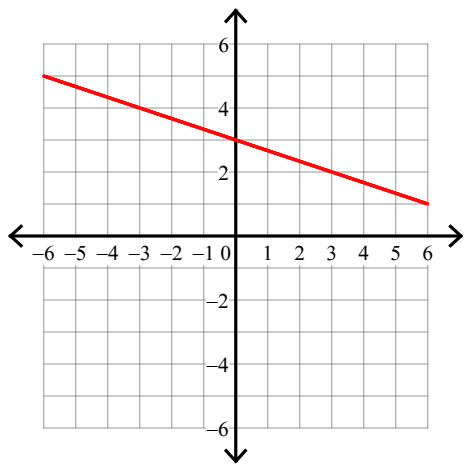
83) $-2 = -x - 2y$



84) $-2 = -x$

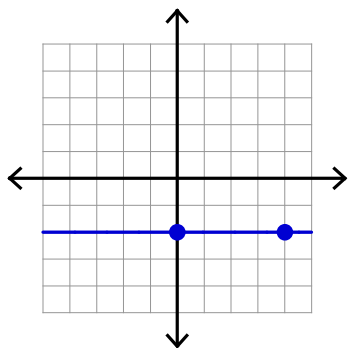


85) $9y + 3x = 27$



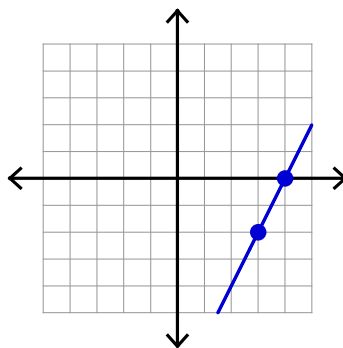
Find the slope of each line.

86)



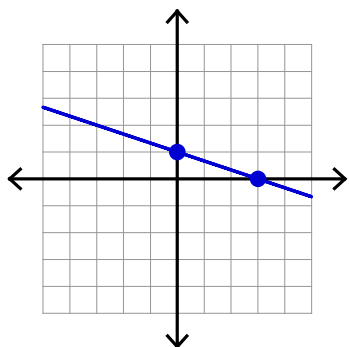
0

87)



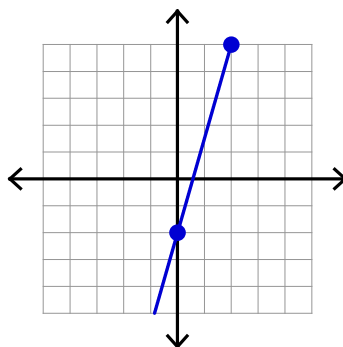
2

88)



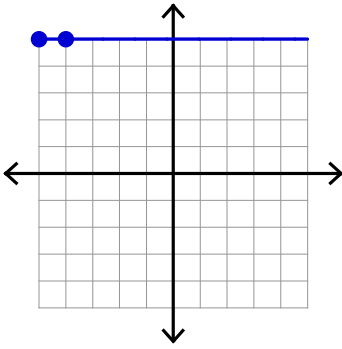
$-\frac{1}{3}$

89)



$\frac{7}{2}$

90)



0

Find the slope of the line through each pair of points.

91) $(-2, -7), (-9, 11) \quad -\frac{18}{7}$

92) $(-19, 14), (4, -16) \quad -\frac{30}{23}$

93) $(-8, 14), (18, 11) \quad -\frac{3}{26}$

94) $(12, -16), (14, -14)$

1

95) $(-20, -13), (-14, -12) \quad \frac{1}{6}$

Find the slope of each line.

96) $y = \frac{1}{4}x - 4 \quad \frac{1}{4}$

97) $y = \frac{5}{2}x - 3 \quad \frac{5}{2}$

98) $y = -\frac{1}{4}x + 4 \quad -\frac{1}{4}$

99) $y = 6x + 5$

6

100) $y = -\frac{9}{4}x + 4 \quad -\frac{9}{4}$

Find the slope of a line parallel to each given line.

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

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

103) $y = 4x$

4

104) $x = 4$

Undefined

105) $y = x - 1$

1

Find the slope of a line perpendicular to each given line.

106) $x = -2$

0

107) $y = \frac{5}{2}x + 4 - \frac{2}{5}$

108) $y = \frac{2}{3}x + 4 - \frac{3}{2}$

109) $y = -10x + 5 \frac{1}{10}$

110) $y = 1$
Undefined

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

111) $4x + y = -4$

$y = -4x - 4$

112) $y = -7$

$y = -7$

113) $5x + 9y = 10 \quad y = -\frac{5}{9}x + \frac{10}{9}$

114) $y = 7$

$y = 7$

115) $x + 3y = -6 \quad y = -\frac{1}{3}x - 2$

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

116) Slope = $-\frac{1}{5}$, y-intercept = -2

$x + 5y = -10$

117) Slope = $\frac{1}{2}$, y-intercept = 5

$x - 2y = -10$

118) Slope = $\frac{3}{5}$, y-intercept = -1

$3x - 5y = 5$

119) Slope = $-\frac{2}{3}$, y-intercept = 0

$2x + 3y = 0$

120) Slope = -8 , y-intercept = -5

$8x + y = -5$

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

121) through: $(-1, 0)$ and $(-3, -4)$

$y = 2x + 2$

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

$y = -x + 4$

123) through: $(-5, 5)$ and $(3, -4) \quad y = -\frac{9}{8}x - \frac{5}{8}$

124) through: $(-5, -3)$ and $(2, -3)$

$y = -3$

125) through: $(-1, -2)$ and $(4, 4) \quad y = \frac{6}{5}x - \frac{4}{5}$

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

126) through: $(4, -3)$, parallel to $y = -2x + 4$

$y = -2x + 5$

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

$y = 2x - 4$

128) through: $(1, 2)$, parallel to $y = 3x + 4$

$y = 3x - 1$

129) through: $(3, 1)$, parallel to $y = \frac{1}{8}x - 5 \quad y = \frac{1}{8}x + \frac{5}{8}$

130) through: $(-4, 2)$, parallel to $y = -x + 5$

$y = -x - 2$

131) through: $(1, 0)$, perp. to $y = \frac{1}{4}x + 4$

$y = -4x + 4$

132) through: $(0, -1)$, perp. to $y = -\frac{1}{4}x - 5$

$$y = 4x - 1$$

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

$$y = -x$$

133) through: $(-1, 0)$, perp. to $y = \frac{1}{4}x + 2$

$$y = -4x - 4$$

135) through: $(-3, 2)$, perp. to $y = -\frac{3}{2}x + 1$ $y = \frac{2}{3}x + 4$