# Solving Proportions Practice Problems

1.) $\dfrac{x}{30} = \dfrac{3}{5}$

2.) $\dfrac{5}{6} = \dfrac{x}{3}$

3.) $\dfrac{2}{a+6} = \dfrac{4}{a-4}$

4.) $\dfrac{6}{x-6} = \dfrac{2}{x}$

5.) $\dfrac{k+3}{3} = \dfrac{k}{5}$

6.) $\dfrac{6}{2} = \dfrac{m-5}{m-2}$

7.) $\dfrac{3}{m-6} = \dfrac{6}{m}$

8.) $\dfrac{k}{k-4} = \dfrac{5}{3}$

9.) $\dfrac{6}{4} = \dfrac{x}{x+4}$

10.)          $\dfrac{n+3}{3} = \dfrac{n}{6}$

# Solving Proportions Practice Problems Answers

1.) 18

2.) $\frac{5}{2}$

3.) $-16$

4.) $-3$

5.) $-\frac{15}{2}$

6.) ½

7.) 12

8.) 10

9.) $-12$

10.)        $-6$

# Solving Equations Practice Problems

1.) $74 = 2(2 + 6x) + 2x$

2.) $-4k - 5(2k + 1) = 27 - 6k$

3.) $-3n + 30 = 3(3n + 2)$

4.) $-4n - 2(6 + 2n) = -2 + 6n$

5.) $-5x - 3 = -3 - x$

6.) $1 + r = 3r - 11$

7.) $-\frac{4}{3}x + 2x = \frac{4}{3}$

8.) $3n - \frac{7}{2}n = -\frac{1}{2}$

9.) $2n - \frac{5}{2} - n = -\frac{1}{2}$

10.) $\quad -x - 7x = 15 - 3x$

# Solving Equations Practice Problems Answers

1.) 5

2.) $-4$

3.) 2

4.) $-5$

5.) 0

6.) 6

7.) 2

8.) 1

9.) 2

10.)        $-3$

# Write the Equation of a Line Given 2 Points Practice

Write the equation of each line passing through the given points.

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

2) through: $(0, 5)$ and $(4, -1)$

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

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

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

6) through: $(0, 1)$ and $(-4, 1)$

7) through: $(0, -2)$ and $(4, 5)$

8) through: $(-4, 5)$ and $(-5, -5)$

# Write the Equation of a Line Given 2 Points Practice Answers

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

$y = 2x - 6$

2) through: $(0, 5)$ and $(4, -1)$

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

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

$y = 3$

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

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

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

$x = 1$

6) through: $(0, 1)$ and $(-4, 1)$

$y = 1$

7) through: $(0, -2)$ and $(4, 5)$

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

8) through: $(-4, 5)$ and $(-5, -5)$

$y = 10x + 45$

9) through: $(2, 1)$ and $(0, -2)$

$y = \frac{3}{2}x - 2$

10) through: $(-3, 3)$ and $(-2, 2)$

$y = -x$

# Write the Equation of a Line Given 1 Point and the Slope Practice

1) through: $(5, 1)$, slope $= \dfrac{4}{5}$

2) through: $(3, 3)$, slope $= \dfrac{1}{3}$

3) through: $(2, 2)$, slope $= \dfrac{5}{2}$

4) through: $(3, 4)$, slope $= \dfrac{2}{3}$

5) through: $(-5, -2)$, slope $= \dfrac{7}{5}$

6) through: $(4, -2)$, slope $= -\dfrac{1}{2}$

7) through: $(4, 4)$, slope $= \dfrac{1}{2}$

8) through: $(-2, -3)$, slope $= -1$

# Write the Equation of a Line Given 1 Point and the Slope Practice Answers

1) through: $(5, 1)$, slope $= \dfrac{4}{5}$

$$y = \frac{4}{5}x - 3$$

2) through: $(3, 3)$, slope $= \dfrac{1}{3}$

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

3) through: $(2, 2)$, slope $= \dfrac{5}{2}$

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

4) through: $(3, 4)$, slope $= \dfrac{2}{3}$

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

5) through: $(-5, -2)$, slope $= \dfrac{7}{5}$

$$y = \frac{7}{5}x + 5$$

6) through: $(4, -2)$, slope $= -\dfrac{1}{2}$

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

7) through: $(4, 4)$, slope $= \dfrac{1}{2}$

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

8) through: $(-2, -3)$, slope $= -1$

$$y = -x - 5$$

# Determining if Lines are Parallel, Perpendicular or Neither Practice

Determine whether each pair of lines are parallel, perpendicular, or neither. Explain you answer.

1) $y = \frac{1}{6}x - 4$ and $6x - y = 1$

Answer: _____

5) $y = -\frac{4}{7}x + 11$ and $y = \frac{7}{4}x - 3$

Answer: _____

2) $y = -\frac{5}{2}x - 18$ and $5x + 2y = -8$

Answer: _____

6) $y = -\frac{3}{4}x + 9$ and $y = -\frac{3}{4}x + 4$

Answer: _____

3) $y = \frac{7}{5}x - 20$ and $y = -\frac{7}{5}x - 3$

Answer: _____

7) $y = \frac{3}{8}x - 16$ and $y = -\frac{8}{3}x + 4$

Answer: _____

4) $y = -\frac{5}{3}x - 17$ and $-5x + 3y = -9$

Answer: _____

8) $y = x + 7$ and $x + y = -1$

Answer: _____

# Determining if Lines are Parallel, Perpendicular or Neither Practice Answers

1. Neither – their slopes are not exactly the same and are not opposite reciprocals

2. Parallel – their slopes are exactly the same

3. Neither – their slopes are not exactly the same and are not opposite reciprocals

4. Neither – their slopes are not exactly the same and are not opposite reciprocals

5. Perpendicular – their slopes are opposite reciprocals

6. Parallel – their slopes are exactly the same

7. Perpendicular – their slopes are opposite reciprocals

8. Perpendicular – their slopes are opposite reciprocals

# Graphing a Line by Making a Table of Values Practice

Graph each line by creating a chart of x and y values. Find and plot at least 3 points.

1) $x - 4y = 12$
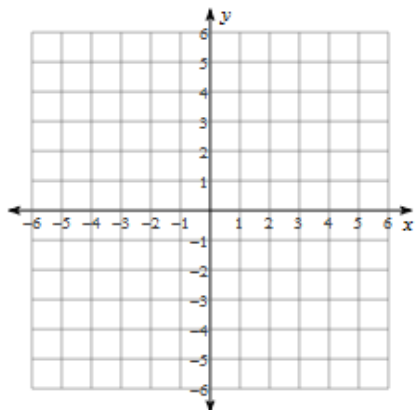
2) $2x - y = 3$
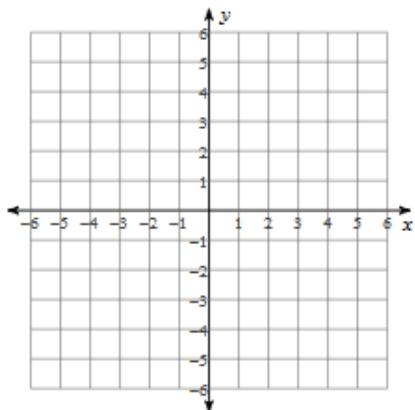
3) $3x + y = -4$
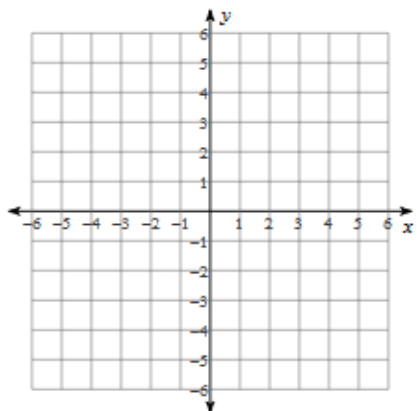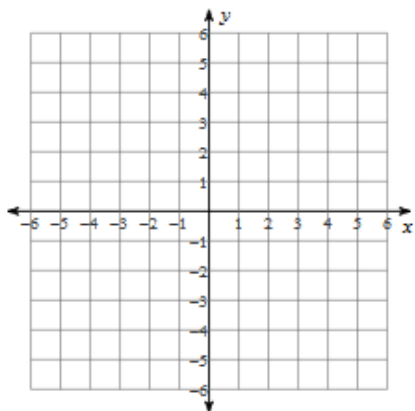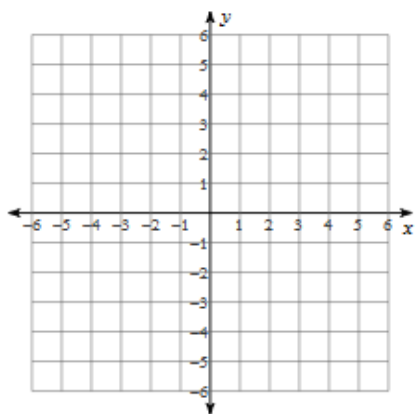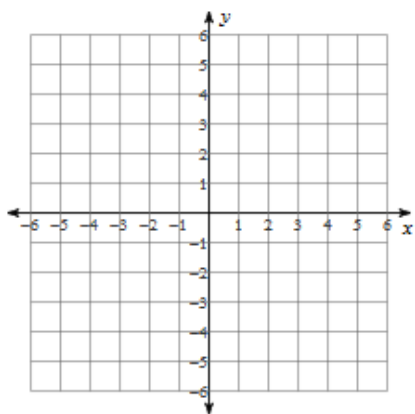
4) $x - 4y = 0$

5) $x + y = -3$

6) $x + 2y = 10$

# Graphing a Line by Making a Table of Values Practice Answers

**\*\* X values that you choose will vary. Here are what the graphed lines should look like, regardless of the points you chose\*\***

1) $x - 4y = 12$
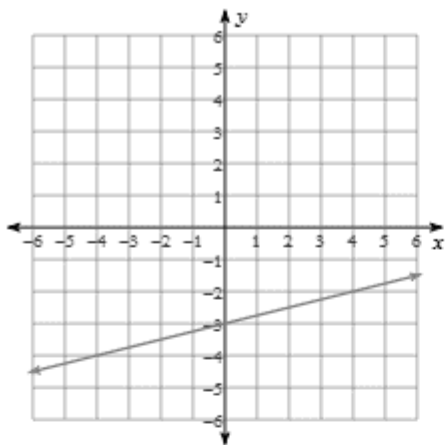
2) $2x - y = 3$
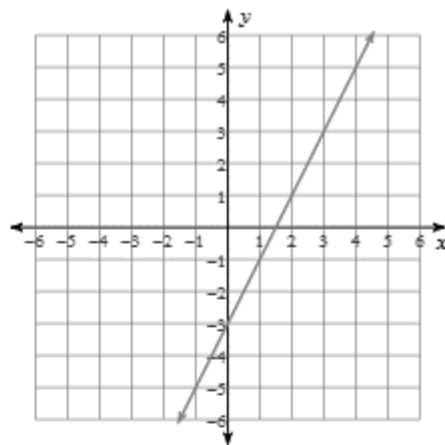
3) $3x + y = -4$
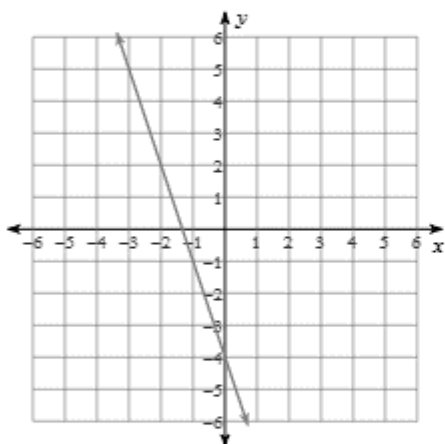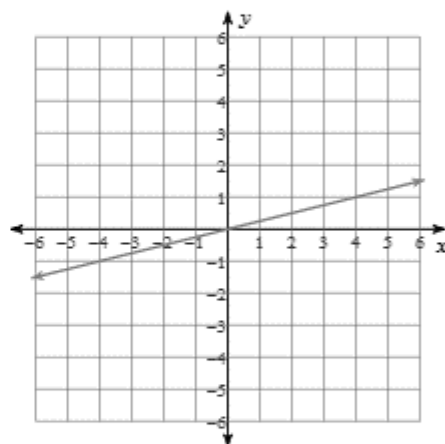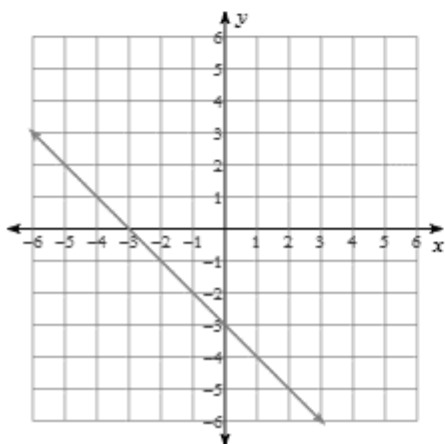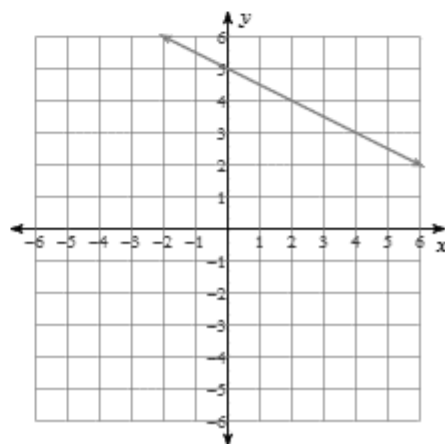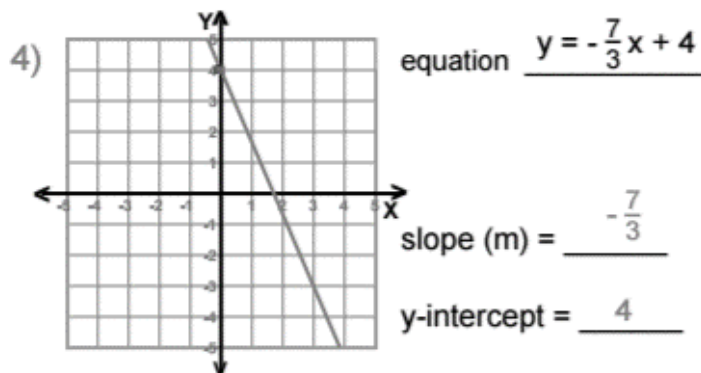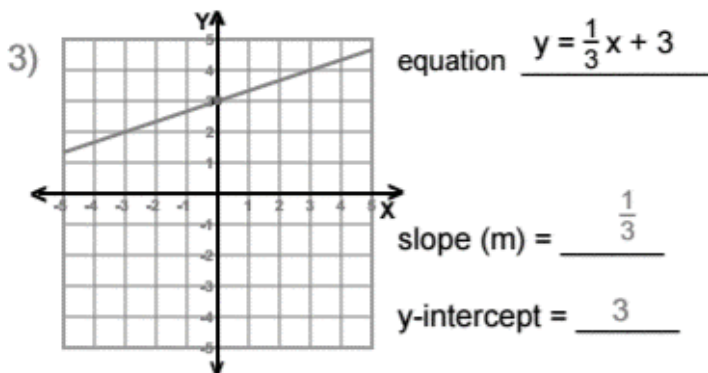
4) $x - 4y = 0$

5) $x + y = -3$

6) $x + 2y = 10$

# Graphing a Line in Slope Intercept & find m and b Practice

1)

equation $y = \frac{8}{3}x - 5$

slope (m) = _____

y-intercept = _____

2)

equation $y = 2x - 4$

slope (m) = _____

y-intercept = _____

3)

equation $y = \frac{1}{3}x + 3$

slope (m) = _____

y-intercept = _____

4)

equation $y = -\frac{7}{3}x + 4$

slope (m) = _____

y-intercept = _____

5)

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

slope (m) = _____

y-intercept = _____

6)

equation $y = -x + 3$

slope (m) = _____

y-intercept = _____

7)

equation $y = -\frac{3}{4}x + 4$

slope (m) = _____

y-intercept = _____

8)

equation $y = -4x + 4$
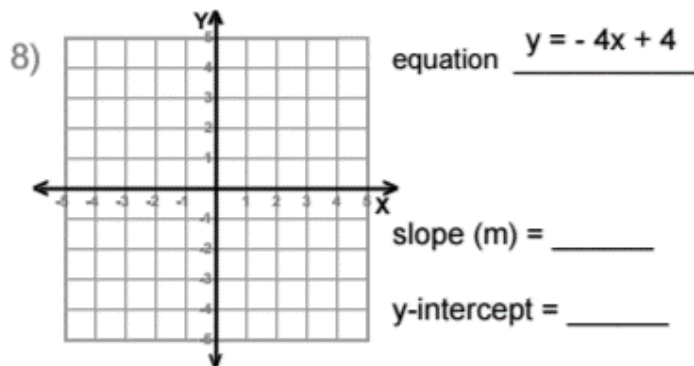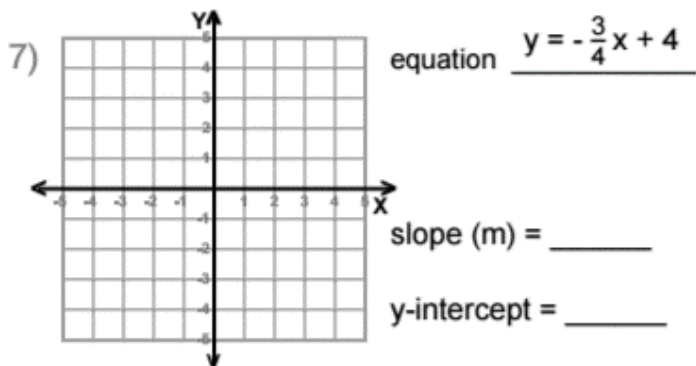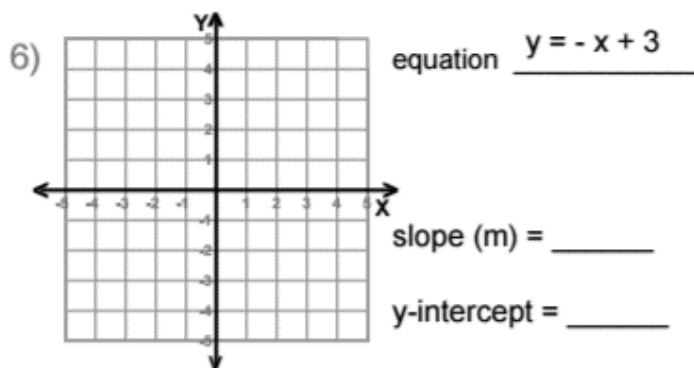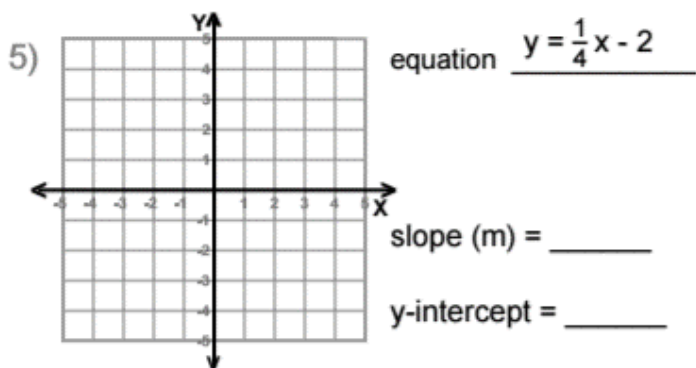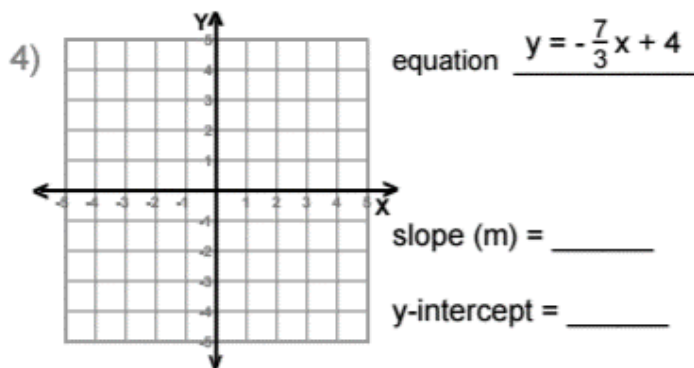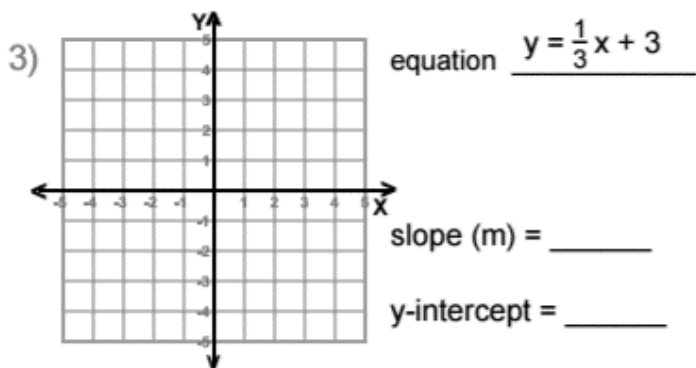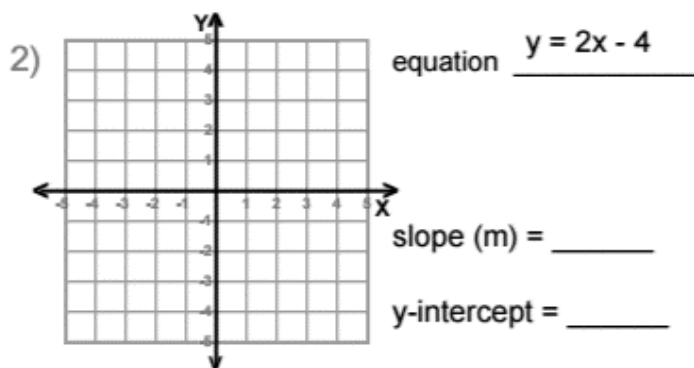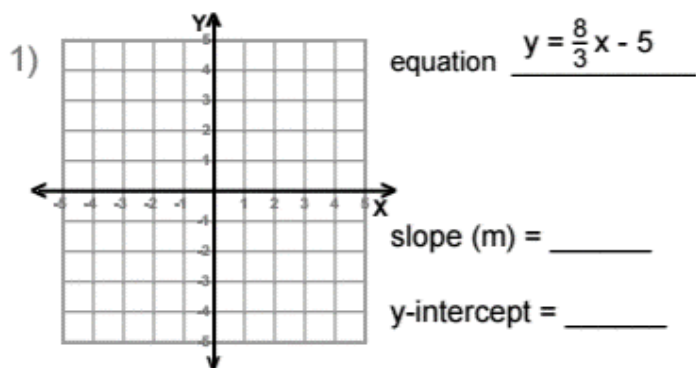
slope (m) = _____

y-intercept = _____

# Graphing a Line in Slope Intercept & find m and b Practice Answers

1)

equation $y = \frac{8}{3}x - 5$

slope (m) = $\frac{8}{3}$

y-intercept = $-5$

2)

equation $y = 2x - 4$

slope (m) = $2$

y-intercept = $-4$

3)

equation $y = \frac{1}{3}x + 3$

slope (m) = $\frac{1}{3}$

y-intercept = $3$

4)

equation $y = -\frac{7}{3}x + 4$

slope (m) = $-\frac{7}{3}$

y-intercept = $4$

5)

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

slope (m) = $\frac{1}{4}$

y-intercept = $-2$

6)

equation $y = -x + 3$

slope (m) = $-1$

y-intercept = $3$

7)

equation $y = -\frac{3}{4}x + 4$

slope (m) = $-\frac{3}{4}$

y-intercept = $4$

8)

equation $y = -4x + 4$

slope (m) = $-4$
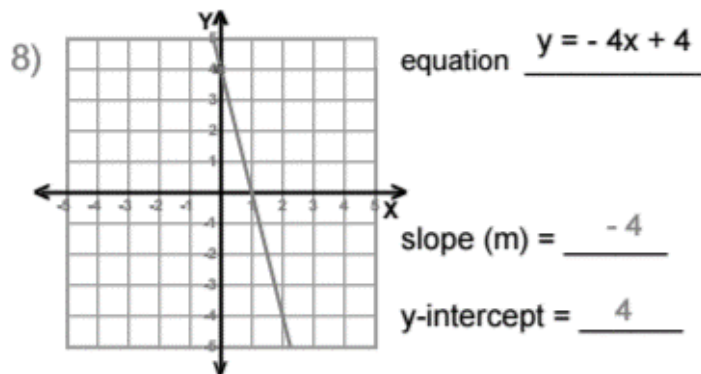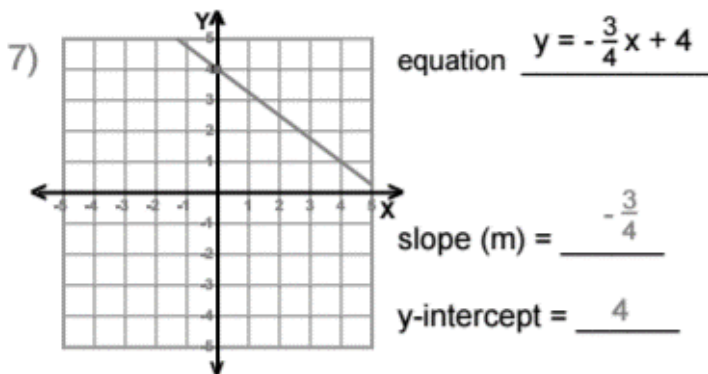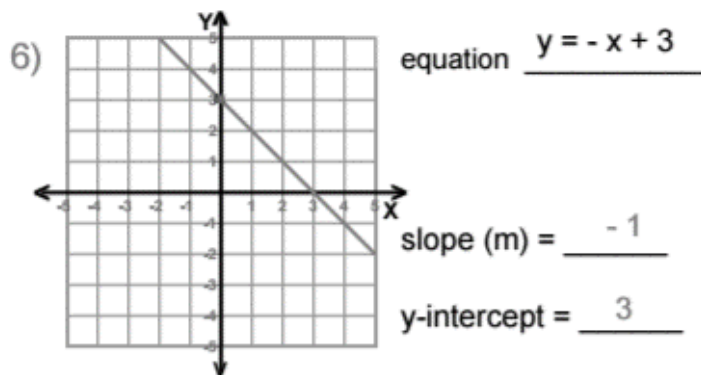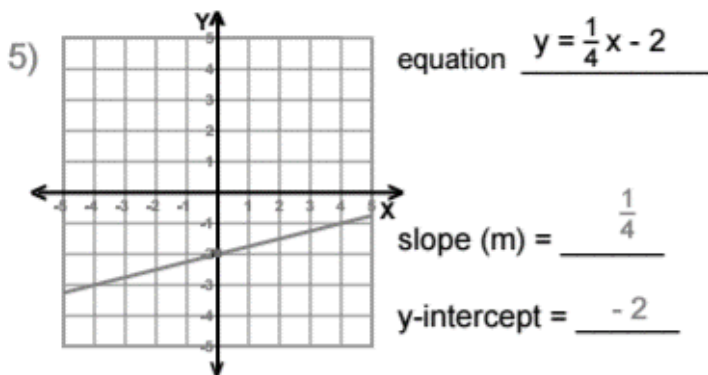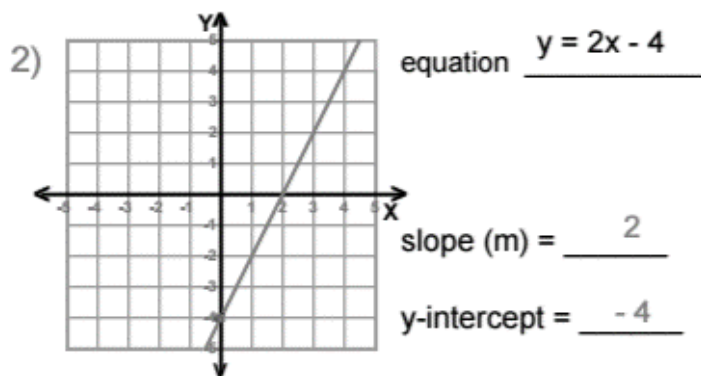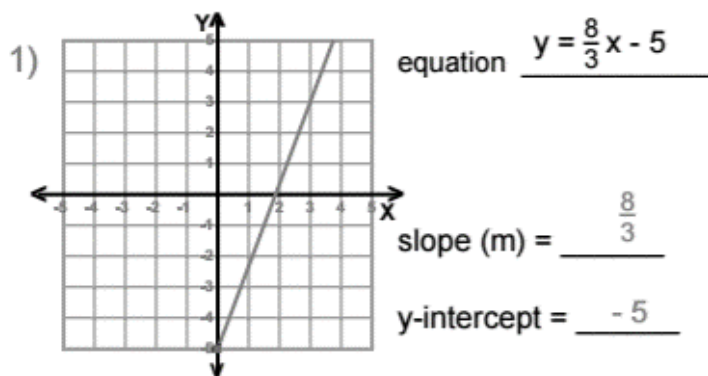
y-intercept = $4$

# Finding x and y intercepts and Using them to Graph a Line Practice

Find the x and y intercepts of each. Use them to graph each line.

$x + y = 2$
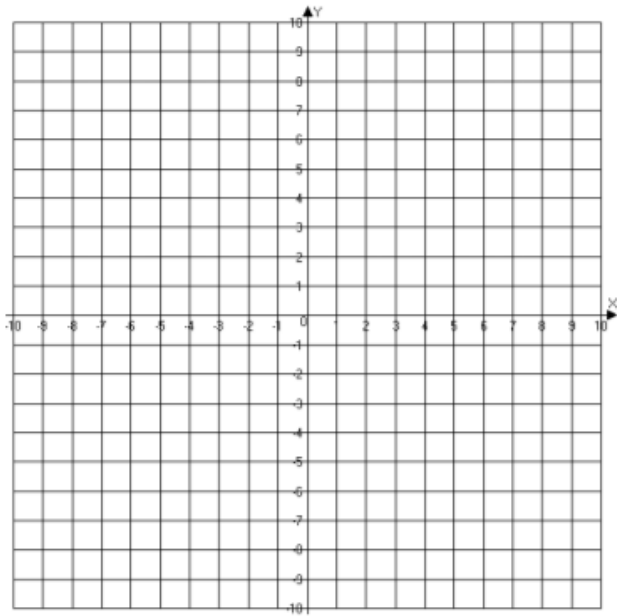


x- and y- intercepts: _____

$5x - 3y = 15$
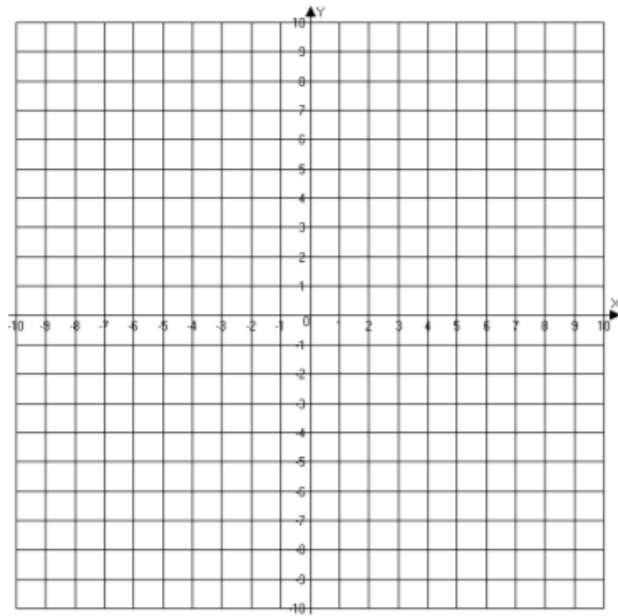


x- and y- intercepts: _____

$4y = 3x + 12$
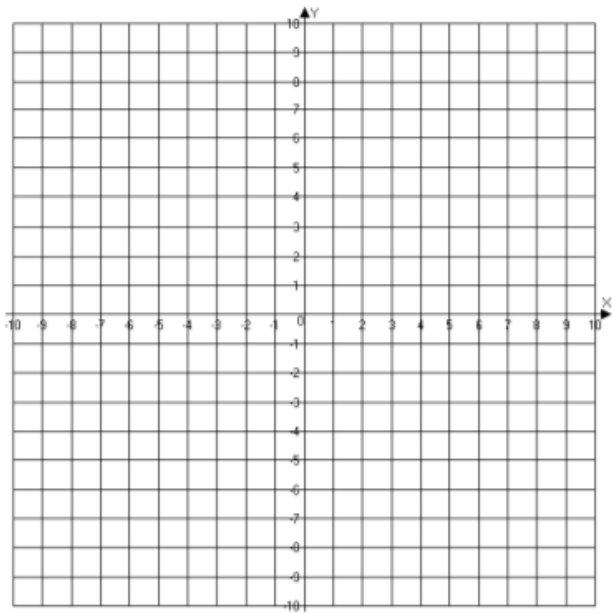


x- and y- intercepts: _____

$2x + y = -8$
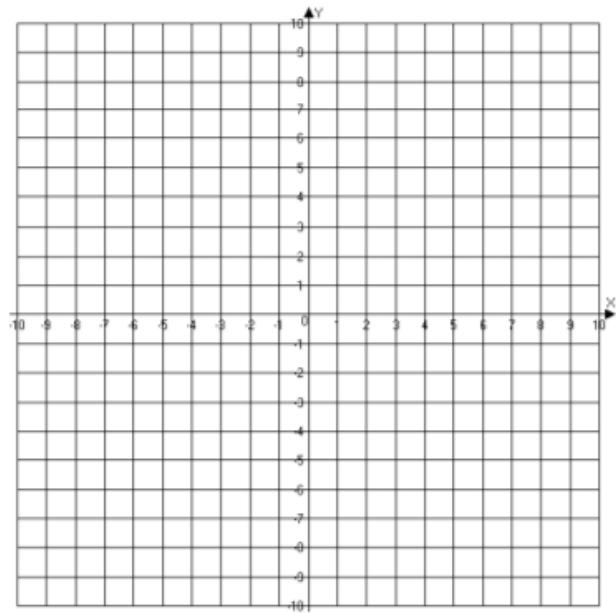


x- and y- intercepts: _____

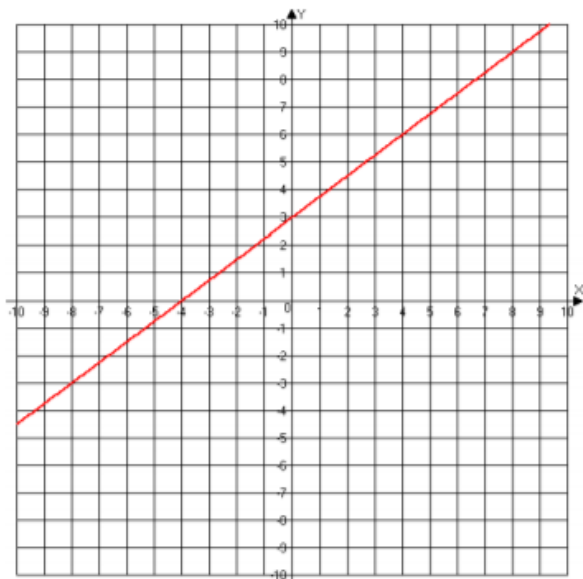# Finding x and y intercepts and Using them to Graph a Line Practice Answers

$x + y = 2$
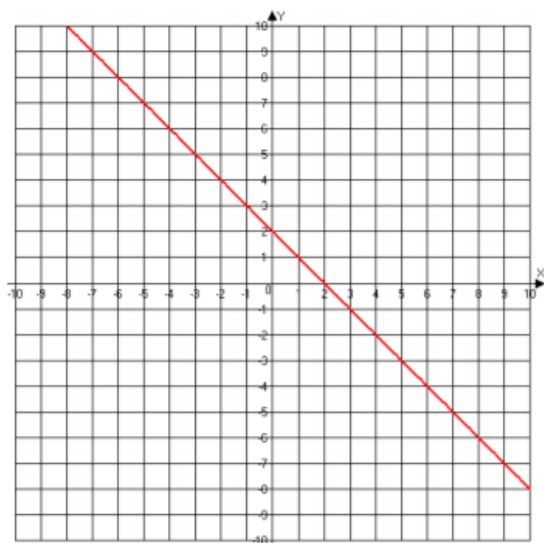


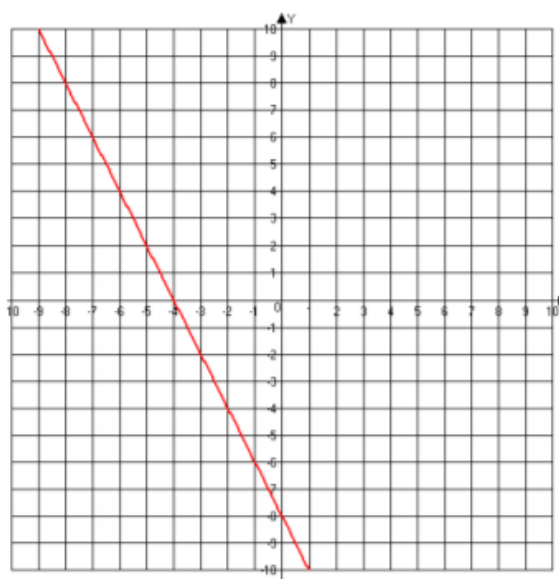x- and y- intercepts: $(2, 0)$ $and$ $(0, 2)$

$5x - 3y = 15$
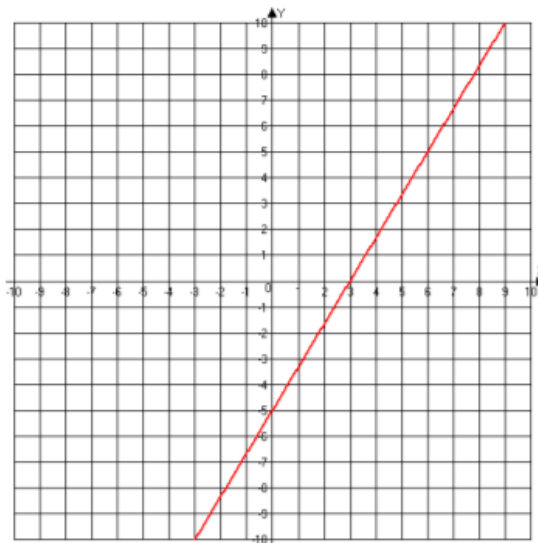


x- and y- intercepts: $(3, 0)$ $and$ $(0, -5)$

$4y = 3x + 12$



x- and y- intercepts: $(-4, 0)$ $and$ $(0, 3)$

$2x + y = -8$



x- and y- intercepts: $(-4, 0)$ $and$ $(0, -8)$

# Solving and Graphing Inequalities Practice Problems

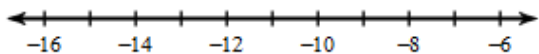Solve each inequality. State your solution and graph it on a number line.

1) $-2 \geq \dfrac{v}{3} - 2$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
 -8  -7  -6  -5  -4  -3  -2  -1   0   1   2
```

2) $-20 > 4(m + 1)$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
  -14      -12      -10      -8       -6       -4
```

3) $-16 \geq -4(x + 3)$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
 -4  -3  -2  -1   0   1   2   3   4   5   6
```

4) $-35 > -5(n - 3)$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
  6   7   8   9  10  11  12  13  14  15  16
```

5) $-60 \leq 5(-4 + n)$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
 -16     -14      -12      -10      -8       -6
```

6) $\dfrac{a}{2} + 5 \geq 1$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
  -12      -10      -8       -6       -4       -2
```

7) $-1 + 3x \geq 11$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
 -4  -3  -2  -1   0   1   2   3   4   5   6
```

8) $-2(x + 5) < 8$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
      -10      -8       -6       -4       -2
```

9) $-15 < 3 + 3k$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
  -12      -10      -8       -6       -4       -2
```
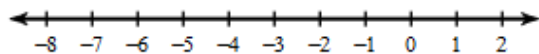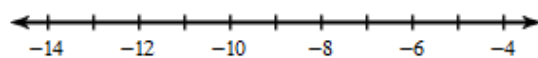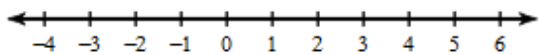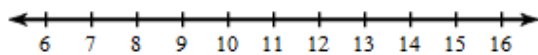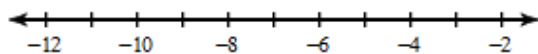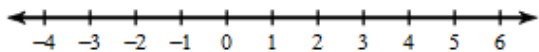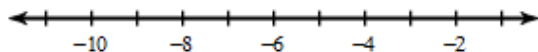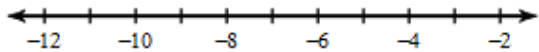
10) $-\dfrac{1}{2}(a - 1) \geq \dfrac{9}{2}$

```
<─┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼─>
      -10      -8       -6       -4       -2
```
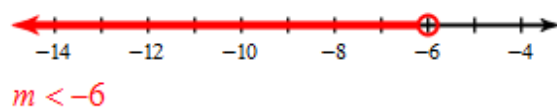
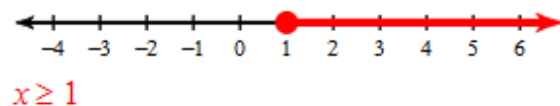# Solving and Graphing Inequalities Practice Problem Answers
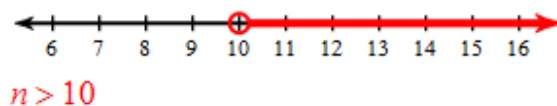
1) $-2 \geq \dfrac{v}{3} - 2$
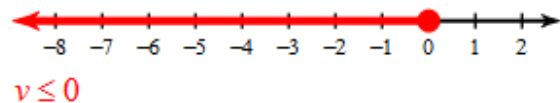
$v \leq 0$

2) $-20 > 4(m + 1)$
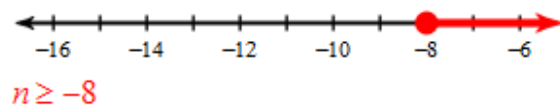
$m < -6$

3) $-16 \geq -4(x + 3)$

$x \geq 1$

4) $-35 > -5(n - 3)$

$n > 10$

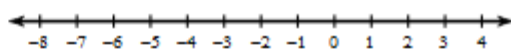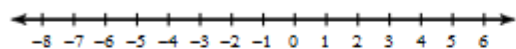5) $-60 \leq 5(-4 + n)$

$n \geq -8$

6) $\dfrac{a}{2} + 5 \geq 1$

$a \geq -8$

7) $-1 + 3x \geq 11$

$x \geq 4$

8) $-2(x + 5) < 8$

$x > -9$

9) $-15 < 3 + 3k$

$k > -6$

10) $-\dfrac{1}{2}(a - 1) \geq \dfrac{9}{2}$

$a \leq -8$
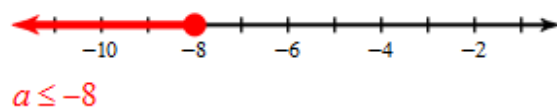
# Solving and Graphing Compound Inequalities Practice Problems – "and"

Solve each inequality. State your solution and graph it on a number line.
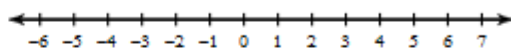
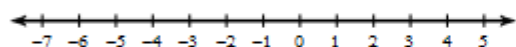1) $47 \le 5 - 7r < 61$
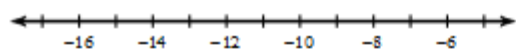


2) $-13 < -7m - 6 < 22$



3) $-2 < 1 - a \le 7$
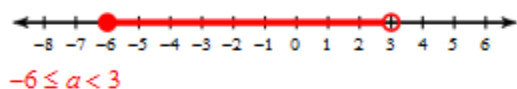


4) $3 < 6 + m \le 11$
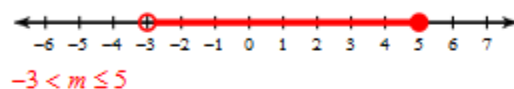


5) $-27 \le 4x - 3 < 5$
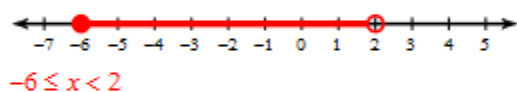


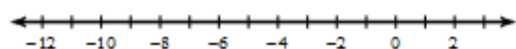6) $-43 \le 5a - 8 < -8$
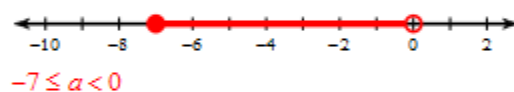


7) $-20 < 2n - 4 \le -4$
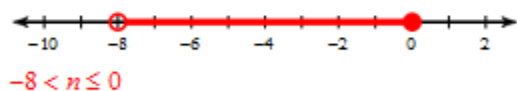


8) $-29 < 4b - 1 < 7$
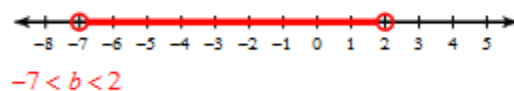


9) $-1 < \dfrac{b}{11} < 0$
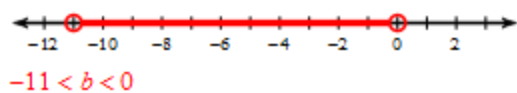


10) $-1 < \dfrac{n}{4} \le 1$
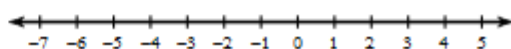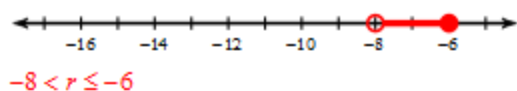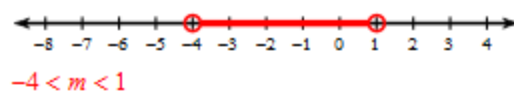
# Solving and Graphing Compound Inequalities Practice Answers– "and"

1) $47 \le 5 - 7r < 61$



$-8 < r \le -6$

2) $-13 < -7m - 6 < 22$



$-4 < m < 1$

3) $-2 < 1 - a \le 7$



$-6 \le a < 3$

4) $3 < 6 + m \le 11$



$-3 < m \le 5$

5) $-27 \le 4x - 3 < 5$



$-6 \le x < 2$

6) $-43 \le 5a - 8 < -8$



$-7 \le a < 0$

7) $-20 < 2n - 4 \le -4$



$-8 < n \le 0$

8) $-29 < 4b - 1 < 7$



$-7 < b < 2$

9) $-1 < \dfrac{b}{11} < 0$



$-11 < b < 0$

10) $-1 < \dfrac{n}{4} \le 1$



$-4 < n \le 4$
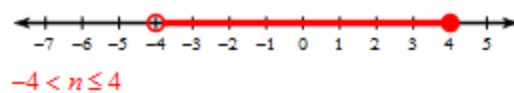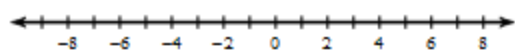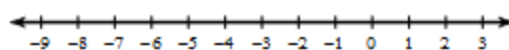
# Solving and Graphing Compound Inequalities Practice Problems – "or"

Solve each inequality. State your solution and graph it on a number line.

1) $-5x - 1 < -21$ or $1 - 4x > 17$

2) $3a + 2 < -16$ or $3 - 2a < 7$

3) $4n - 5 \geq 3$ or $-3n - 1 > 5$
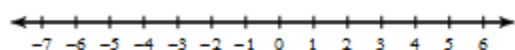
4) $5n + 4 < 14$ or $-5 + 5n \geq 10$

5) $3 - 4k > 19$ or $1 + 2k > -1$

6) $3x + 6 > 9$ or $x - 5 \leq -10$

7) $-2n - 1 \geq 9$ or $4 - 2n \leq -6$

8) $3x - 1 \geq 17$ or $x + 3 < -3$

9) $3 + 3p \leq 0$ or $-3 + 5p > 2$

10) $4 + 3n \leq -2$ or $2 - 2n \leq -4$
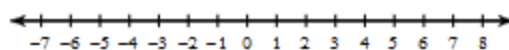
# Solving and Graphing Compound Inequalities Practice Problem Answers – "or"

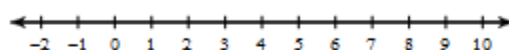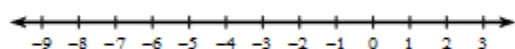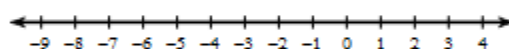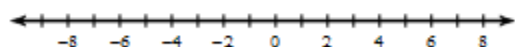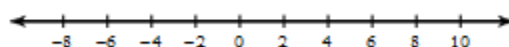1) $-5x - 1 < -21$ or $1 - 4x > 17$
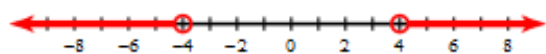
$x > 4$ or $x < -4$

2) $3a + 2 < -16$ or $3 - 2a < 7$
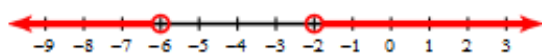
$a < -6$ or $a > -2$

3) $4n - 5 \geq 3$ or $-3n - 1 > 5$
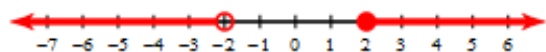
$n \geq 2$ or $n < -2$

4) $5n + 4 < 14$ or $-5 + 5n \geq 10$
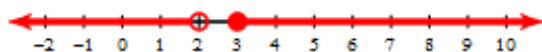
$n < 2$ or $n \geq 3$

5) $3 - 4k > 19$ or $1 + 2k > -1$
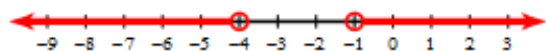
$k < -4$ or $k > -1$

6) $3x + 6 > 9$ or $x - 5 \leq -10$

$x > 1$ or $x \leq -5$
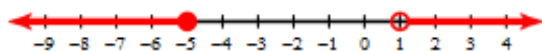
7) $-2n - 1 \geq 9$ or $4 - 2n \leq -6$
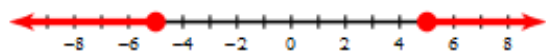
$n \leq -5$ or $n \geq 5$
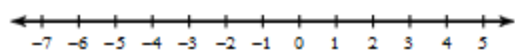
8) $3x - 1 \geq 17$ or $x + 3 < -3$
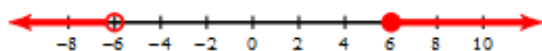
$x \geq 6$ or $x < -6$

9) $3 + 3p \leq 0$ or $-3 + 5p > 2$
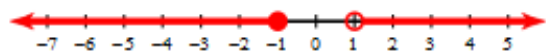
$p \leq -1$ or $p > 1$

10) $4 + 3n \leq -2$ or $2 - 2n \leq -4$
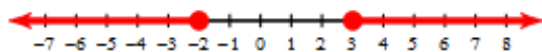
$n \leq -2$ or $n \geq 3$

# Set Theory Practice Problems

Given $U = \{x | x \epsilon Z, 1 \le x < 12, \quad A = \{1, 2, 4, 6, 8, 10\} \qquad B = \{1, 3, 5, 7, 8, 9\}$

a.) $A'$

b.) $B'$

c.) $A' \cup B'$

d.) $A' \cap B'$

e.) $(A \cup B)'$

f.) $A \cup B'$

g.) $B \cap A'$

# Set Theory Practice Answers

(a) {3, 5, 7, 9, 11}
(b) {2, 4, 6, 10, 11}
(c) {2, 3, 4, 5, 6, 7, 9, 10, 11}
(d) {11}

(e) {1, 2, 4, 6, 8, 10, 11}

(f) {3, 5, 7, 9}

# Order of Operations Practice Problems

1) $5^2 + 6 - 3$

2) $6 - (3 - 6 \div 6)$

3) $(14 + 1) \div 3 - 3$

4) $(2 \cdot 2) \div 2 + 4$

5) $4 + 5 \cdot 6 - (4 + 2)$

6) $(12 - 2) \div 2 \cdot (5 - 3)^2$

7) $2x - 12 \div 2 + 1 \quad if \ x = -3$

8) $12 \bullet 2 \div 2 - 4x \quad if \ x = 7$

9) $-11x - 14 + 9 \div 3 \ if \ x = 2$

10) $5x - 2x + 7 - 4 \ if \ x = 0$

# Order of Operations Practice Answers

1) 28

2) 4

3) 2

4) 6

5) 28

6) 20

7) -11

8) -16

9) -33

10)    3

# Evaluating Functions Practice Problems

1) $g(x) = 2x + 4$; Find $g(4)$

2) $f(x) = 4x + 3$; Find $f(0)$

3) $g(x) = x - 4$; Find $g(-9)$

4) $f(x) = -3x - 2$; Find $f(-2)$

5) $f(x) = x - 4$; Find $f(8)$

6) $g(x) = 4x + 3$; Find $g(3)$

7) $f(x) = -x - 4$; Find $f(-3)$

8) $f(x) = 2x - 3$; Find $f(x) = 7$

9) $g(x) = -x + 3$; Find $g(x) = 17$

10) $f(x) = -2x + 1$; Find $f(x) = 13$

Evaluating Functions Practice Answers

1) 12

2) 3

3) −13

4) 4

5) 4

6) 15

7) −1

8) 5

9) −14

10) −6

Find the Missing Value Within 2 points given the slope practice problems

1) $(x, -2)$ and $(-5, -4)$; slope: $\dfrac{2}{9}$

2) $(9, y)$ and $(-1, -2)$; slope: $\dfrac{3}{5}$

3) $(-7, 2)$ and $(x, 6)$; slope: $\dfrac{2}{7}$

4) $(1, -9)$ and $(x, -3)$; slope: $-\dfrac{3}{5}$

5) $(-3, 5)$ and $(x, -2)$; slope: $-7$

6) $(x, 1)$ and $(4, 3)$; slope: $-\dfrac{1}{2}$

7) $(x, 7)$ and $(5, -5)$; slope: $-4$

8) $(9, -1)$ and $(0, y)$; slope: $\dfrac{2}{3}$

9) $(-7, -6)$ and $(x, -1)$; slope: $\dfrac{5}{4}$

10) $(6, -6)$ and $(0, y)$; slope: $\dfrac{1}{6}$

Find the Missing Value Within 2 points given the slope practice answers

1) 4        2) 4        3) 7        4) –9
5) –2       6) 8        7) 2        8) –7
9) –3       10) –7

# Write the Equation of a Line Given a Line Perpindicular Practice Problems

1) through: $(1, -3)$, perp. to $2y = -x - 2$

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

3) through: $(-3, 5)$, perp. to $y = \frac{3}{4}x + 3$

4) through: $(1, -5)$, perp. to $4y - x = 16$

5) through: $(-2, -5)$, perp. to $y = -\frac{7}{8}x - 2$

6) through: $(-1, 5)$, perp. to $y = \frac{1}{6}x + 4$

7) through: $(1, 4)$, perp. to $y = -\frac{1}{8}x + 3$

8) through: $(-1, -3)$, perp. to $y = -\frac{1}{2}x + 5$

9) through: $(1, 2)$, perp. to $y = -\frac{3}{2}x + 5$

10) through: $(-2, 0)$, perp. to $y = -2x + 3$

# Write the Equation of a Line Given a Line Perpindicular Practice Answers

1) $y = 2x - 5$

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

3) $y = -\dfrac{4}{3}x + 1$

4) $y = -4x - 1$

5) $y = \dfrac{8}{7}x - \dfrac{19}{7}$

6) $y = -6x - 1$

7) $y = 8x - 4$

8) $y = 2x - 1$

9) $y = \dfrac{2}{3}x + \dfrac{4}{3}$

10) $y = \dfrac{1}{2}x + 1$