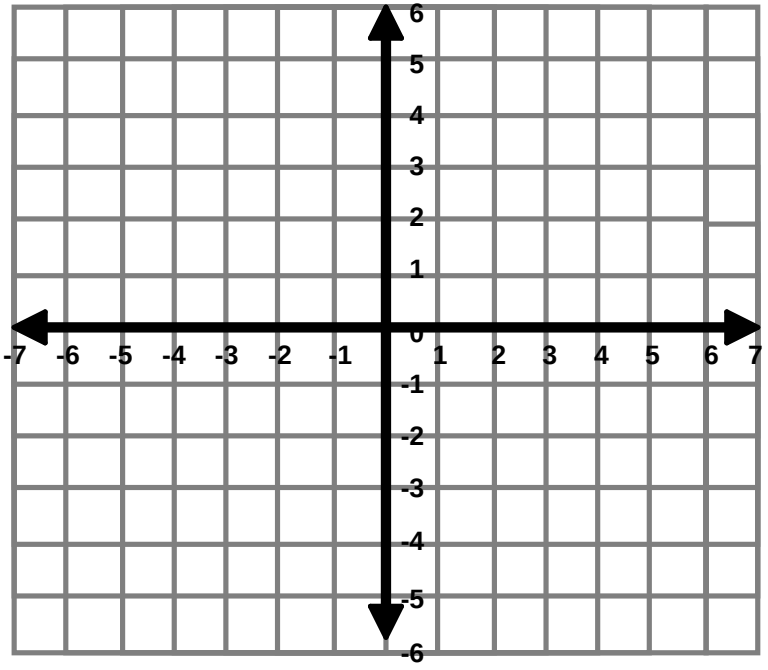
4.6

Writing Equations in Slope Intercept Form

Practice

1) $-3x+9y=-18$



***x*-intercept**

Plug-in ***y*=0** into the equation and solve for ***x***.

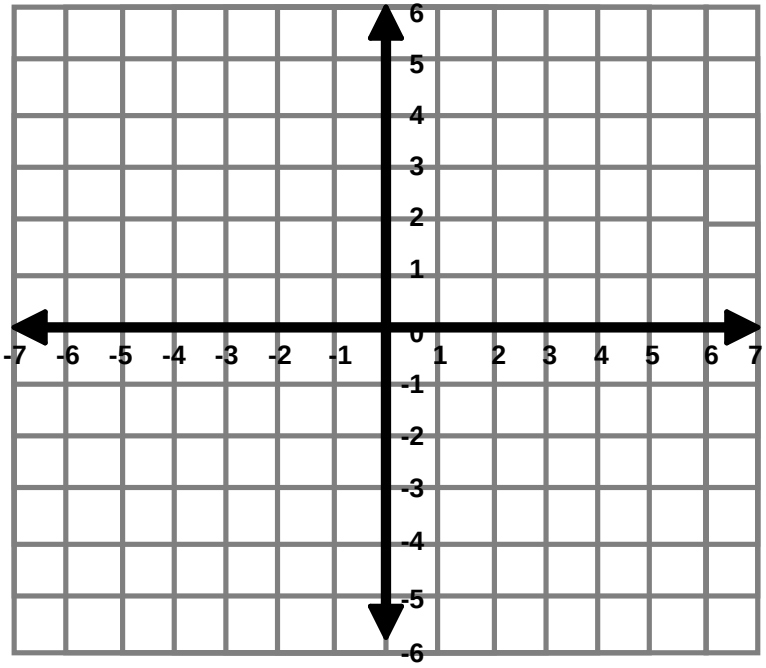
***y*-intercept**

Plug-in ***x*=0** into the equation and solve for ***y***.

Graph the equation using the intercepts.

Practice

2) $5x + 4y = 20$



***x*-intercept**

Plug-in ***y*=0** into the equation and solve for ***x***.

***y*-intercept**

Plug-in ***x*=0** into the equation and solve for ***y***.

Graph the equation using the intercepts.

Slope-Intercept Form

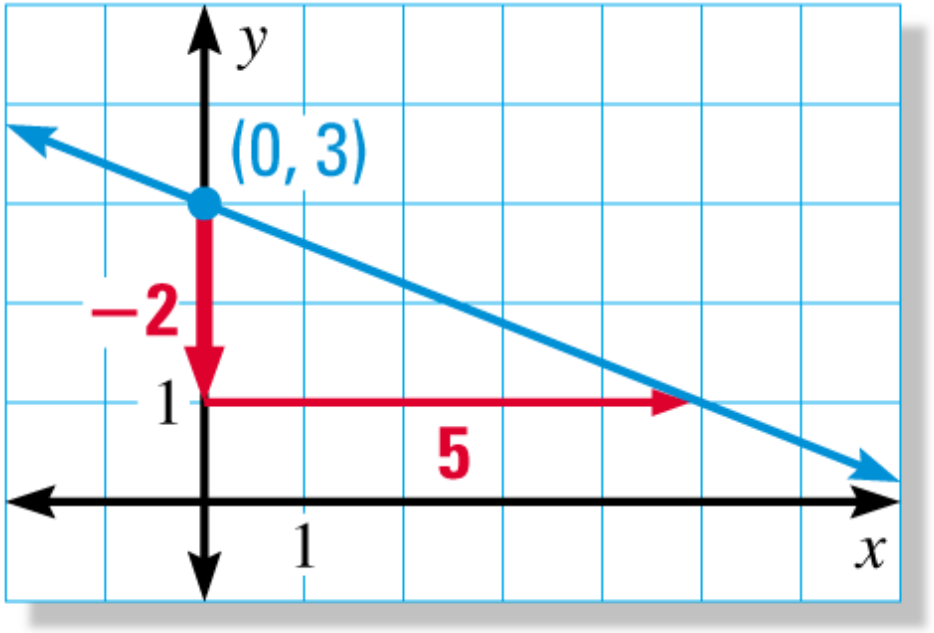
What is the equation of line in slope-intercept form?

Example

3) Write an equation of the line with a slope of -2 and a y-intercept of 5.

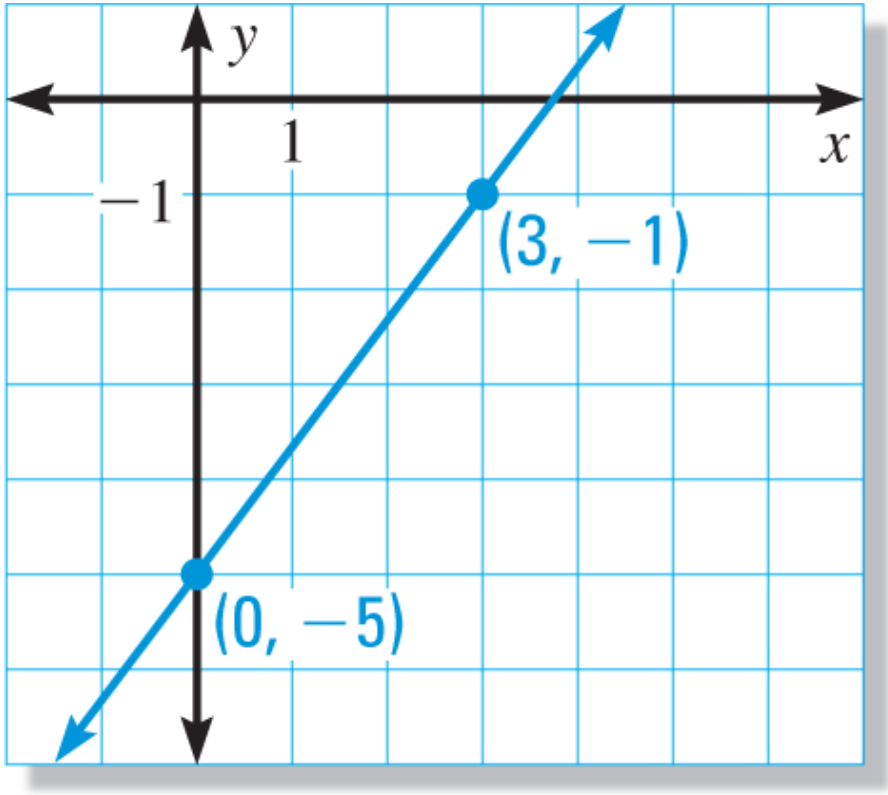
Example

4) Write an equation of the line shown.



Example

5) Write an equation of the line shown.



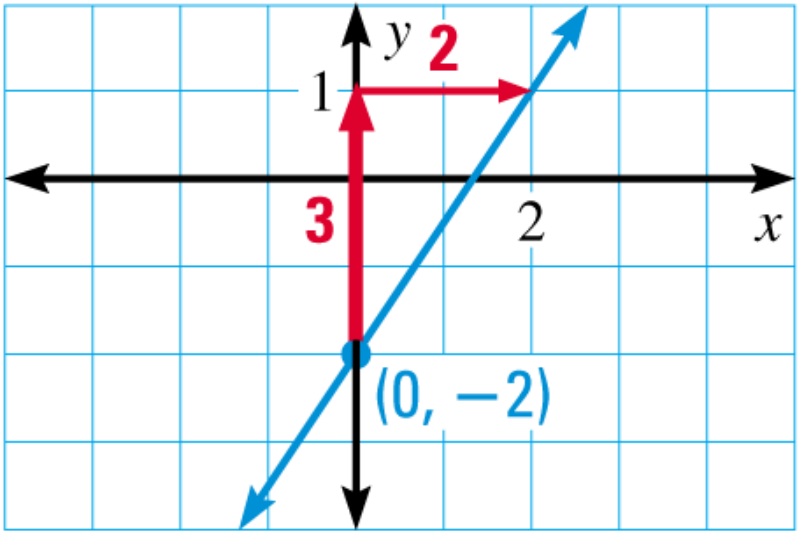
Practice

6) Write an equation of the line with a slope of 8 and a y-intercept of -7.

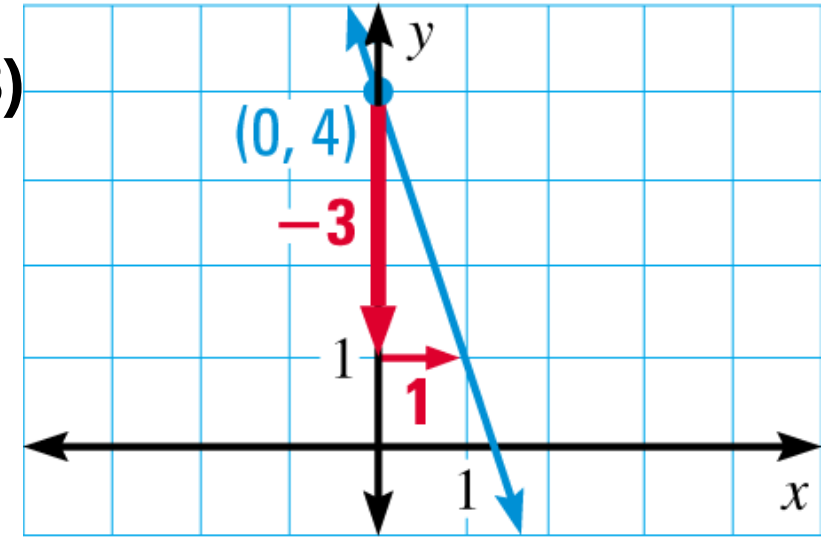
Practice

Write an equation of the line shown.

7)

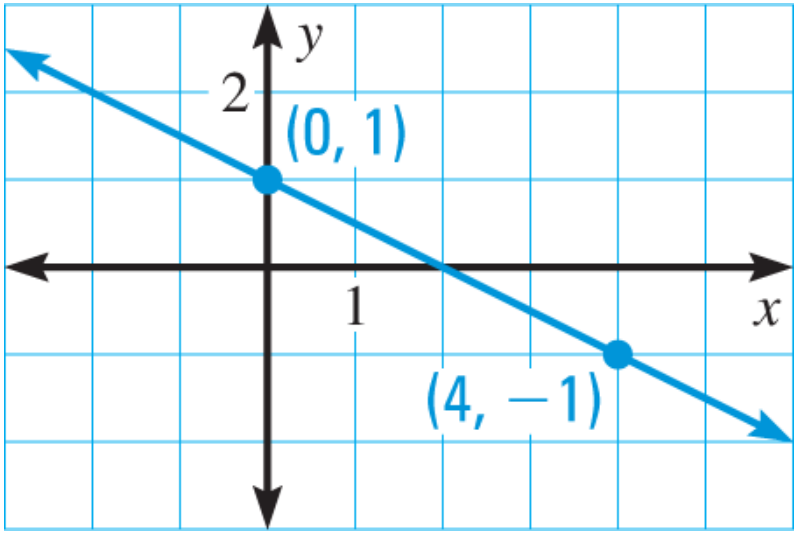


8)



Practice

9) **Write an equation of the line shown.**



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

Writing an Equation of Line from Two Points

Step 1) Find the slope between the two points
Step 2) Plug the slope into slope-intercept form
Step 3) Find the y-int. using one of the two points

Example

a) Write an equation of the line that passes through the points (2, -1), (0, 6).

Writing an Equation of Line from Two Points

Step 1) Find the slope between the two points
Step 2) Plug the slope into slope-intercept form
Step 3) Find the y-int. using one of the two points

Example

b) Write an equation of the line that passes through the points (3, -1), (0, -4).

Writing an Equation of Line from Two Points

Step 1) Find the slope between the two points
Step 2) Plug the slope into slope-intercept form
Step 3) Find the y-int. using one of the two points

Example

c) Write an equation of the line that passes through the points (-3, 1), (0, -5).

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{-5 - 1}{0 - -3}$$

$$= \frac{-6}{3}$$

$$= -2$$

$$y = mx + b$$

$$y = -2x - 5$$

Writing an Equation of Line from Two Points

Step 1) Find the slope between the two points
Step 2) Plug the slope into slope-intercept form
Step 3) Find the y-int. using one of the two points

Example

d) Write an equation of the line that passes through the points (0, 3), (3, 7).

Practice

e) Write an equation of the line that passes through the points (0, -5), (4, -9).

Recognizing the *Slope-Intercept Form* in Word Problems

$$y = mx + b$$

Translating Word Problems into Slope-Intercept Form

1) Suppose that the water level of a river is 34 feet and that it is increasing at a rate of 0.5 foot per day. Write an equation for the water level, y, after x days. In how many days will the water level be 42 feet?

a) What is given amount for this problem?

y-int =_____, slope = _____

b) What do the variables stand for:

x=_____, y= _____

c) Write an equation to model the situation.

Translating Word Problems into Slope-Intercept Form

2) Seth's father is thinking of buying his son a six-month movie pass for $40. With the pass, matinees cost $1.00. If matinees are normally $3.50 each, how many times must Seth attend in order for it to benefit his father to buy the pass?

a) What is given amount for this problem?

y-int =_____, slope = _____

b) What do the variables stand for:

x=_____, y= _____

c) Write an equation to model the situation.

Translating Word Problems into Slope-Intercept Form

3) Nick is given $50 to spend on a vacation . He decides to spend $5 a day. The amount Nick has left and the number of days are related.

a) What is given amount for this problem?

y-int =_____, slope = _____

b) What do the variables stand for:

x=_____, y= _____

c) Write an equation to model the situation.

Translating Word Problems into Slope-Intercept Form

4) An airplane 30,000 feet above the ground begins descending at the rate of 2000 feet per minute. Assume the plane continues at the same rate of descent. The plane's height and minutes above the ground are related to each other.

a) What is given amount for this problem?

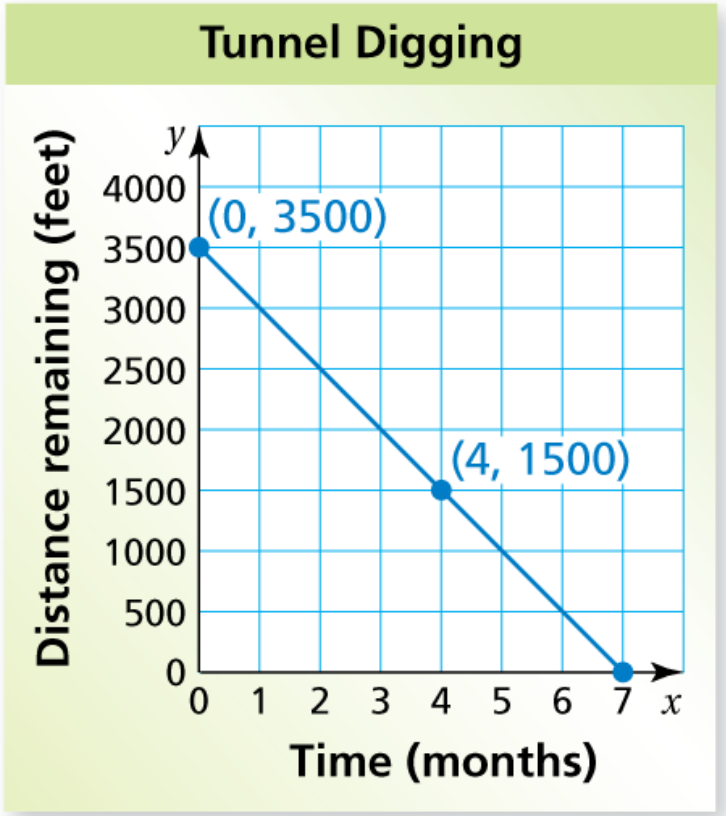
y-int =_____, slope = _____

b) What do the variables stand for:

x=_____, y= _____

c) Write an equation to model the situation.

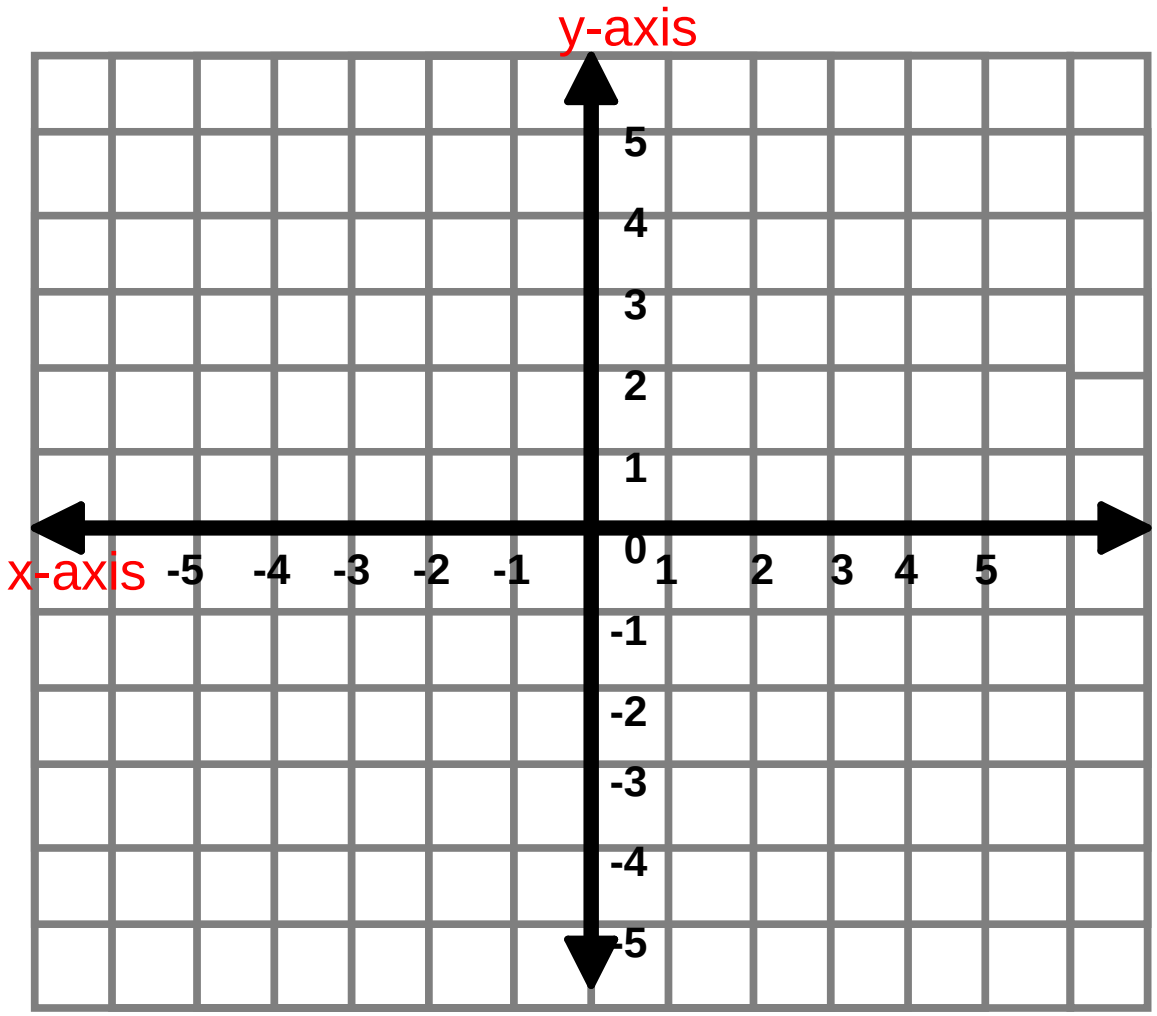
5) **The graph shows the distance remaining to complete a tunnel. (a) Write an equation that represents the distance y (in feet) remaining after x months. (b) How much time does it take to complete the tunnel?**



Graphing Horizontal and Vertical Lines

6) $y = 4$

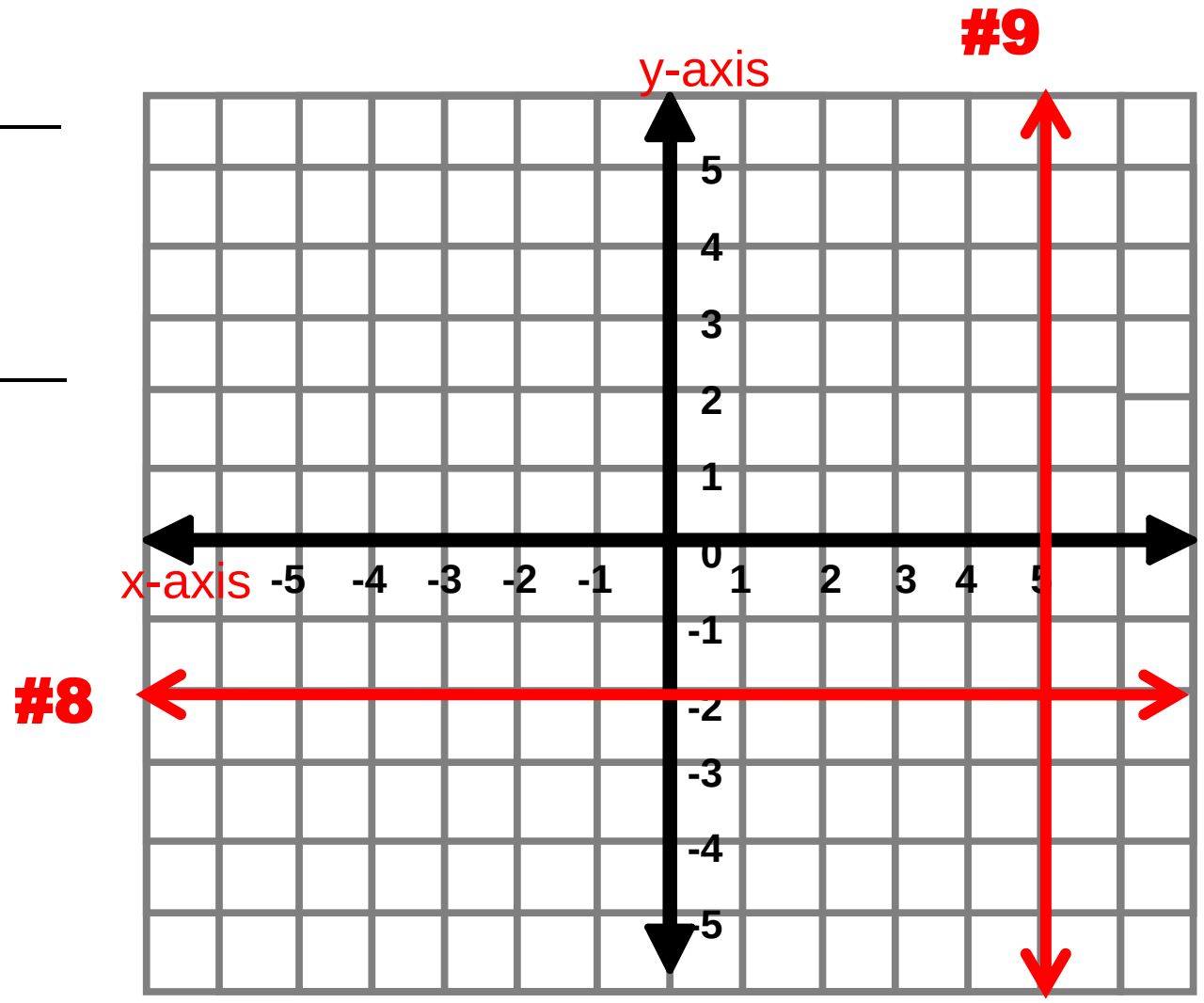
7) $x = -3$



Writing Equations for Horizontal and Vertical Lines

8) _____

9) _____



10) Write an equation that represents each side of the figure.