

1. What is the equation of a line that is <sup>same slope</sup> parallel to  $y = 3x + 1$  and goes through point  $(-4, -8)$ ? <sup>x y</sup>

$$y = mx + b$$

$$-8 = 3(-4) + b$$

$$-8 = -12 + b$$

$$\begin{array}{r} +12 \\ +12 \\ \hline 4 = b \end{array}$$

$$y = 3x + 4$$

2. What is the equation of a line that is <sup>flip fraction, change sign</sup> perpendicular to  $y = 3x + 1$  and goes through point  $(9, 4)$ ? <sup>x y</sup>

$$m = -\frac{1}{3}$$

$$y = mx + b$$

$$4 = -\frac{1}{3}(9) + b$$

$$4 = -\frac{9}{3} + b$$

$$4 = -3 + b$$

$$\begin{array}{r} 3 \\ +3 \\ \hline 7 = b \end{array}$$

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

1. Geometry WS

2. ALEKS knowledge check

1. Compare and contrast slopes of parallel and perpendicular lines.

parallel lines have the same slopes

perpendicular lines - slopes have opposite signs and flipped fractions

2. Write the equation of a line that is parallel to the line  $y = 1x/2 + 5$  and goes through the (4,-5)

$$y = \frac{1}{2}x + 5$$

$$y = mx + b$$

$$-5 = \frac{1}{2}(4) + b$$

$$-5 = 2 + b$$

$$\begin{array}{r} -2 \\ -2 \\ \hline \end{array}$$

$$-7 = b$$

$$y = \frac{1}{2}x - 7$$

3. Write the equation of a line that is perpendicular to the line  $y = \frac{1}{2}x + 5$  and goes through the  $(0, 2)$

$$m = -2$$

$$y = -2x + 2$$

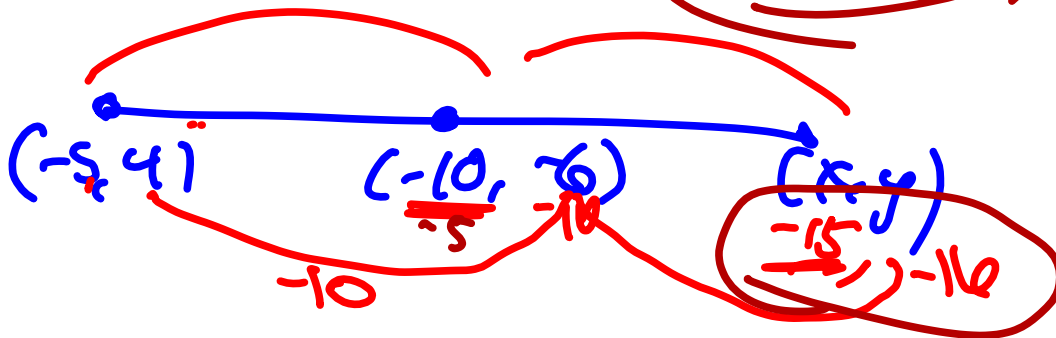
4. Jennifer and Jane are best friends. They placed a map of their town on a grid and found the point at which each of their houses lie. If Jen's house is at  $(-4, -2)$  and Jane's house is at  $(10, 3)$  and they want to meet in the middle, what are the coordinates of the place they should meet?

$$\frac{-4 + 10}{2} \quad \frac{-2 + 3}{2}$$

$$\frac{6}{2} \quad \frac{1}{2}$$

$$(3, \frac{1}{2})$$

5. If the endpoint of a line is  $(-5, 4)$  and the midpoint of that line is  $(-10, -6)$ , what is the other endpoint?



$$\frac{-5 + x}{2} = -10$$

$$-5 + x = -20$$

$$\begin{array}{r} -5 + x = -20 \\ +5 \quad +5 \\ \hline x = -15 \end{array}$$

$$\frac{4 + y}{2} = -6$$

$$4 + y = -12$$

$$\begin{array}{r} 4 + y = -12 \\ -4 \quad -4 \\ \hline y = -16 \end{array}$$

6. Find the distance between the points. Round to the nearest tenth if necessary.

$(-3, 6)$  and  $(2, 1)$

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\sqrt{(2 - (-3))^2 + (1 - 6)^2}$$

$$\sqrt{5^2 + 5^2}$$

$$\sqrt{50}$$

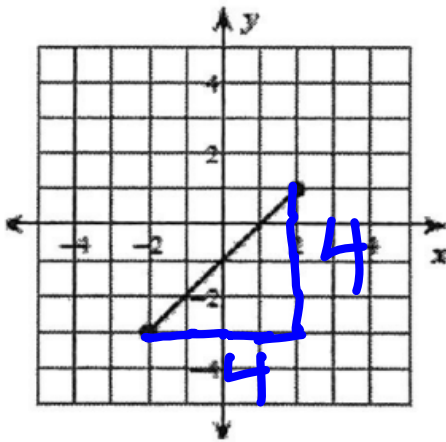
$$\approx 7.1$$

50  
25 25  
5 5

$$5\sqrt{2}$$

Find the distance between the points. Round to the nearest tenth if necessary.

7.



$$4^2 + 4^2 = c^2$$

$$16 + 16 = c^2$$

$$\sqrt{32} = \sqrt{c^2}$$

$$5.7 = c$$

$$\begin{array}{r} 32 \\ \sqrt{16} \\ \hline 2 \end{array}$$

$$2 \cdot 2 \sqrt{2}$$

$$4\sqrt{2}$$

8. Write a linear equation in slope-intercept form with a slope of  $\frac{1}{3}$  that goes through point (6, 4)

$$y = mx + b$$

$$4 = \frac{1}{3}(6) + b$$

$$4 = 2 + b$$

$$\begin{array}{r} -2 \\ -2 \\ \hline 2 = b \end{array}$$

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

9. Write a linear equation in standard form with a slope of  $\frac{1}{3}$  that goes through point  $(6, 4)$ . You can convert the answer from #8 to standard form.

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

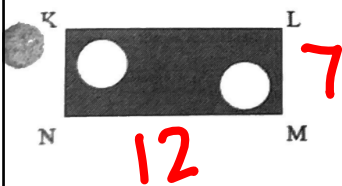
$Ax + By = C$

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

$$-3\left(-\frac{1}{3}x + y = 2\right)$$

$$x - 3y = -6$$

10. Two circles with a diameter of 4in are within rectangle KLMN. LM = 7 inches and NM = 12 inches. Find the area of the shaded region to the nearest tenth of a square inch. Use 3.14 for pi.



$$A_{\square} = bh$$

$$(2)(7)$$

$$84$$

$$A_{\circ} = \pi r^2$$

$$2[3.14(2)^2]$$

$$25.12$$

$$84 - 25.12$$

$$58.9 \text{ in}^2$$