

1. Find the slope of the line parallel to the one that passes through $(-4, 2)$ and $(0, -5)$.

$$m = \frac{-5-2}{0+4} = \frac{-7}{4}$$

Parallel \rightarrow same slope $\rightarrow \boxed{\frac{-7}{4}}$

2. Find the slope of a line perpendicular to the line $y = -2x + 1$

$\perp \rightarrow$ slopes are opp. Reciprocals $\rightarrow \boxed{m = \frac{1}{2}}$

3. In a right triangle, if $a = 4$ and $c = 15$, find side b .

$$4^2 + b^2 = 15^2$$

$$b^2 = 209$$

$$b = \sqrt{209}$$

4. Are the following lines parallel, perpendicular, or neither? $4x - y = 1$ and $x + 4y = 12$

$$-y = -4x + 1$$

$$4y = -x + 12$$

$$y = 4x - 1$$

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

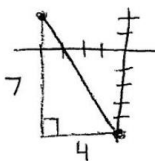
$$m = 4$$

$$m = \frac{-1}{4}$$

\perp since opp. reciprocals

1. Find the distance between the points $(-4, 2)$ and $(0, -5)$.

$$d = \sqrt{(0+4)^2 + (-5-2)^2} = \sqrt{16+49} = \boxed{\sqrt{65}} \approx 8.1$$



$$4^2 + 7^2 = c^2$$

$$c^2 = 16 + 49$$

2. Find the midpoint of the segment with endpoints at $(-4, 2)$ and $(0, -5)$.

$$m = \left(\frac{-4+0}{2}, \frac{2-5}{2} \right) = \boxed{\left(-2, \frac{-3}{2} \right)}$$

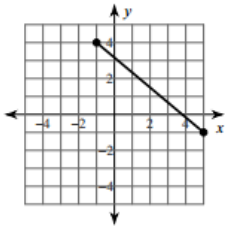
3. Find the slope of a line parallel to $7x + 6y = 18$.

$$6y = -7x + 18$$

$$y = \frac{-7}{6}x + 3$$

$$m = \frac{-7}{6}$$

1. Find the length and midpoint of the segment graphed on the grid below.



$$d = \sqrt{5^2 + 6^2} = \sqrt{25 + 36} = \sqrt{61} \approx 7.81$$

$$M = \left(\frac{-1+5}{2}, \frac{4-1}{2} \right) = \left(2, \frac{3}{2} \right)$$

2. Find the slope of the line that passes through (-4, -2) and (-3, 5).

$$m = \frac{5+2}{-3+4} = \frac{7}{1} = 7$$

3. Are the following equations parallel, perpendicular, or neither? $4x + 8y = 10$ and $y - 6 = -2x + 2$

$$8y = -4x + 10$$

$$y = \frac{-1}{2}x - \frac{5}{4}$$

$$m = \frac{-1}{2}$$

$$y = -2x + 8$$

$$m = -2$$

Neither, not opposites