

Quiz 3 Solutions

1. Circle the correct answer:

The slope of a horizontal line is **zero**

The slope of a vertical line is **undefined**

The slope of the line pictured is **positive**.

The slope of the line pictured is **negative**.

2. The slope of the line passing through the points $(-1, 2)$ and $(3, -4)$ is equal to

$$\begin{aligned} m &= \frac{-4 - 2}{3 - (-1)} \\ &= \frac{-6}{4} \\ &= -\frac{3}{2} \end{aligned}$$

3. The slope of a line perpendicular to $y = \frac{3}{7}x + 2$ equals $-\frac{7}{3}$

Remember that if l_1 and l_2 are perpendicular lines with slopes m_1 and m_2 , then $m_1 \cdot m_2 = -1$.
Note that $\frac{3}{7} \cdot -\frac{7}{3} = -1$.

4. (a) Write the equation of the line that has slope $\frac{1}{2}$ and passes through the point $(-2, 4)$ using the *point-slope* formula.

Remember the point-slope formula: A line passing through the point (x_1, y_1) is given by the equation $y - y_1 = m(x - x_1)$.

So our line is given by the equation: $y - 4 = \frac{1}{2}(x + 2)$.

- (b) Use your equation in part *a* to find the y -intercept of the line.
Distribute the $\frac{1}{2}$ and add 4 to both sides:

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

Hence, the line has y -intercept 5.