

NAME: _____ Score _____/10

- The graph of a linear equation in two variables is a **line**
- The slope of a vertical line is **undefined**
- The slope of a horizontal line is **0**
- The equation whose graph is a non-vertical line is a **linear** equation in two variables.
- The slope-intercept form of the equation of a line is **$y = mx + b$**
- The point-slope form of the equation of a line is **$y - y_1 = m(x - x_1)$**
- The slope of the line through the points (a, b) and (c, d) is

$$m = \frac{d-b}{c-a} \text{ or } m = \frac{b-d}{a-c}$$

- What is the slope of a line which is perpendicular to the graph of $3y - 2x + 5 = 0$? Show your work neatly and organized. Use words to tell me what you are doing.

Write the given equation in slope-intercept form to determine its slope

$$3y - 2x + 5 = 0$$

$$3y = 2x - 5$$

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

The slope of the given line is $\frac{2}{3}$. The slope of a line perpendicular to the given line is the negative reciprocal of $\frac{2}{3}$ which is $-\frac{3}{2}$.

- Find the y-intercept of the graph of $3y - 2x + 5 = 0$.

Show your work neatly and organized. Use words to tell me what you are doing.

From $y = \frac{2}{3}x - \frac{5}{3}$ as computed in Question 8, it is clear the y-intercept is $-\frac{5}{3}$.

The y-intercept is $(0, -\frac{5}{3})$

OR If $x = 0$, then $3y + 5 = 0$ so that clearly $y = -\frac{5}{3}$. The y-intercept is $(0, -\frac{5}{3})$

- Find the x-intercept of the graph of $3y - 2x + 5 = 0$.

Show your work neatly and organized. Use words to tell me what you are doing.

If $y = 0$, then $-2x + 5 = 0$ and $x = \frac{5}{2}$. The x-intercept is $(\frac{5}{2}, 0)$