3.1 Points on a Line

Linear equation - an equation where no exponent on a variable is higher than 1.

standard form: $Ax + By = C$ (always +/-) A, B, C are numbers; x, y are variables

- forms a line when graphed

  the line forms all of the ordered pairs that are solutions to the equation.

- If an ordered pair makes an equation true, it is a solution to the equation
- If it is a solution to the equation it is on the graph of the equation

* When asked if a point is on a line it means: is it a solution.

1. Does the point (2, -3) pass through the graph of $x - 2y = -4$?

$x - 2y$	-4
$2 - 2(-3)$	-4
$2 + 6$	-4
10	-4

No

2. Find the unknown coordinate for $(x, 5)$ on the line:

$3x + 2y = 22$.

$3x + 2(5) = 22$

$3x + 10 = 22$

$3x = 22 - 10$

$3x = 12$

$x = \frac{12}{3}$

$x = 4$

(4, 5)

y - intercept: where the line crosses the y axis

*** $x = 0$

x - intercept: where the line crosses the x axis

*** $y = 0$

Example: Find the *x* and *y* intercepts for the linear equations. Write each intercept as an ordered pair.

3. $5x + 2y = 6$

x intercept ($y = 0$)

$5x + 2(0) = 6$

$5x + 0 = 6$

$5x = 6$

$x = \frac{6}{5}$

$(\frac{6}{5}, 0)$

y intercept $x = 0$

$5(0) + 2y = 6$

$2y = 6$

$y = 6/2$

$y = 3$

$(0, 3)$

4. $2y + x = 5$

x intercept $y = 0$

$2(0) + x = 5$

$0 + x = 5$

$x = 5$

$(5, 0)$

y intercept $x = 0$

$2y + 0 = 5$

$2y = 5$

$y = \frac{5}{2}$

$(0, 5/2)$

HOMEWORK

Worksheet - HW 3.1 Points on a Line