

AA Notes – Section 5.5 – Standard Form – Finding x- and y- intercepts

Review: Slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$ *remember to label points (x_1, y_1) (x_2, y_2)

Slope-Intercept Form: $y = mx + b$ * m is slope, b is the y-intercept

Graphing from slope-intercept form: plot the y-intercept first, then count the slope (rise over run) and plot the second point, continue counting the slope to plot four points when they will fit on the graph provided; draw a line with a ruler and arrows.

Point-Slope Form: $y - y_1 = m(x - x_1)$ * m is slope, point (x_1, y_1)

Graphing from point-slope form: plot the point first, then count the slope (rise over run) and plot the second point, continue counting the slope to plot four points when they will fit on the graph provided; draw a line with a ruler and arrows.

Standard Form: $Ax + By = C$ *no fractions/decimals; lead +1

Standard Form is used to graph a linear equation using the x & y intercepts.

Vocabulary:

The x-intercept is the point where the line crosses the x-axis.

The y-intercept is the point where the line crosses the y-axis.

To find the x-intercept:

Substitute a zero in for y , and solve the equation for x . Write your answer as an ordered pair, $(x, 0)$.

To find the y-intercept:

Substitute a zero in for x , and solve the equation for y . Write your answer as an ordered pair, $(0, y)$.

Graph using the intercepts:

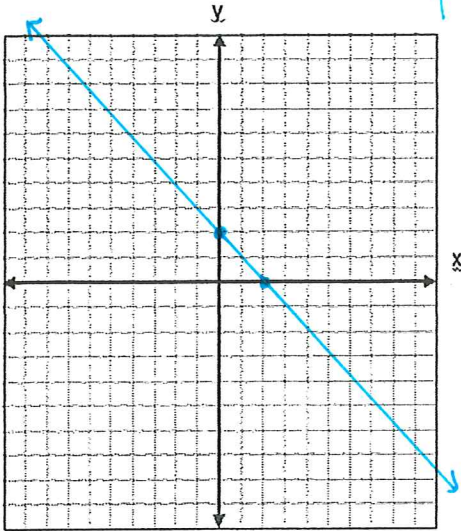
Plot the ordered pairs; the x-intercept will be on the x-axis, and the y-intercept will be on the y-axis. Then draw your line using only those two points. Don't forget to use a ruler and put arrows on your line.

Examples – Find the x- and y- intercepts of the following equations, then graph the lines.

1. $x + y = 2$

$x=0$ $y=0$
 $0 + y = 2$ $x + 0 = 2$
 $y = 2$ $x = 2$

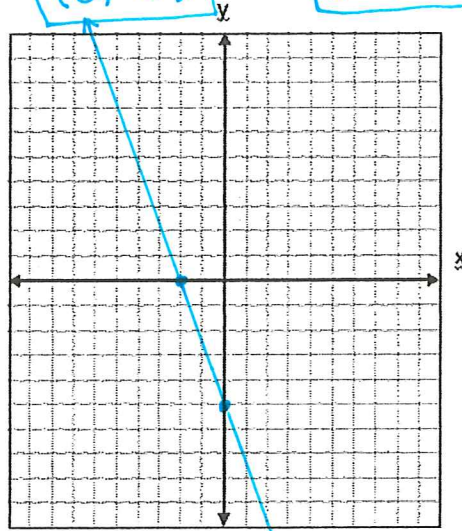
$(0, 2)$ $(2, 0)$



2. $5x + 2y = -10$

$x=0$ $y=0$
 $5(0) + 2y = -10$ $5x + 2(0) = -10$
 $2y = -10$ $5x = -10$
 $y = -5$ $x = -2$

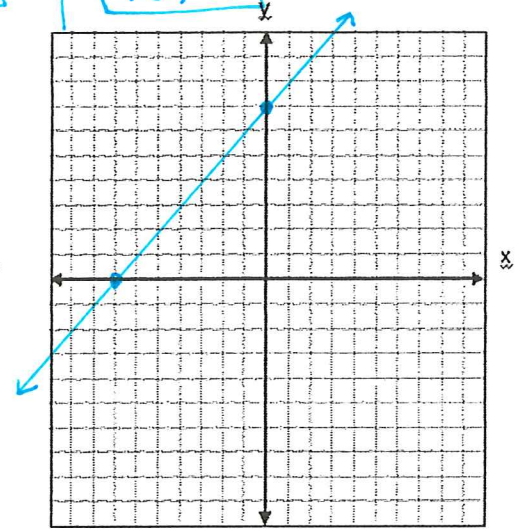
$(0, -5)$ $(-2, 0)$



3. $x - y = -7$

$x=0$ $y=0$
 $0 - y = -7$ $x - 0 = -7$
 $-y = -7$ $x = -7$
 $y = 7$

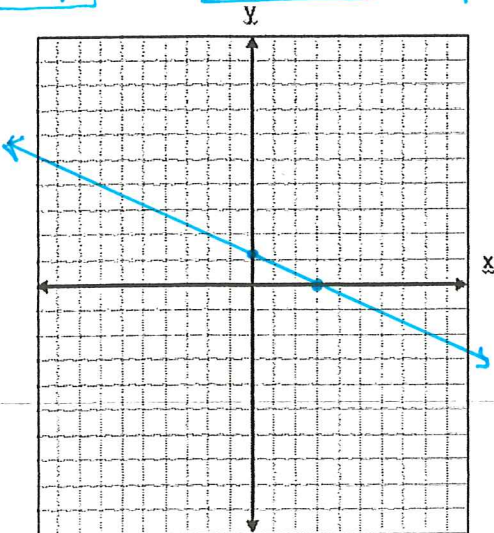
$(0, 7)$ $(-7, 0)$



4. $2x + 5y = 6$

$x=0$ $y=0$
 $2(0) + 5y = 6$ $2x + 5(0) = 6$
 $5y = 6$ $2x = 6$
 $y = 1\frac{1}{5}$ $x = 3$

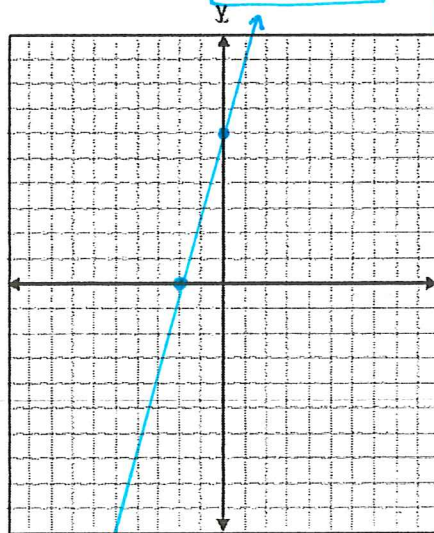
$(0, 1\frac{1}{5})$ $(3, 0)$



5. $-3x + y = 6$

$x=0$ $y=0$
 $-3(0) + y = 6$ $-3x + 0 = 6$
 $y = 6$ $-3x = 6$

$(0, 6)$ $x = -2$
 $(-2, 0)$



6. $4x - 9y = -12$

$x=0$ $y=0$
 $4(0) - 9y = -12$ $4x - 9(0) = -12$
 $-9y = -12$ $4x = -12$

$y = 1\frac{1}{3}$ $x = -3$
 $(0, 1\frac{1}{3})$ $(-3, 0)$

