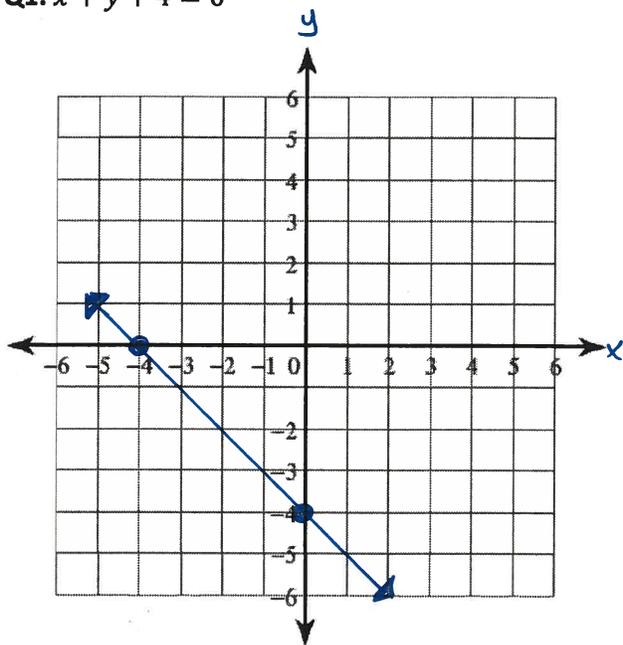First Name:_____   Last Name:_____

L36 – Worksheet – Graphing Lines in General Form

Q1: $x + y + 4 = 0$
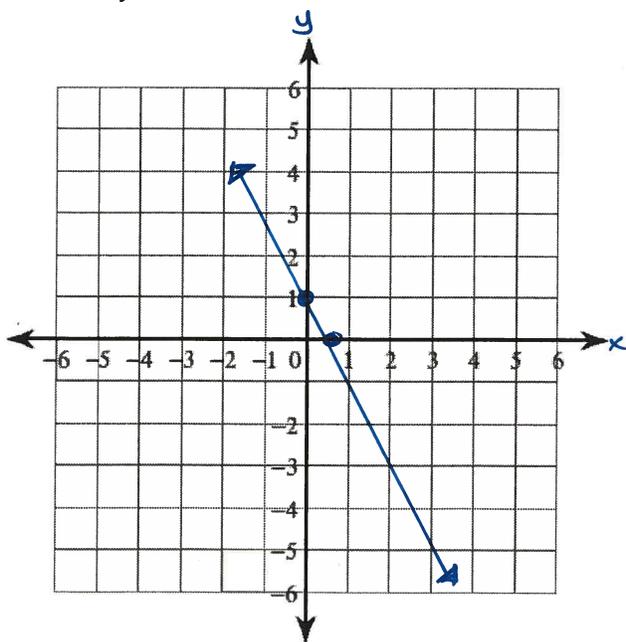

x-Intercept (Set y=0)

$$x + (0) + 4 = 0$$
$$x + 4 = 0$$
$$-4 \quad -4$$
$$x = -4$$

y-Intercept (Set x=0)

$$(0) + y + 4 = 0$$
$$y + 4 = 0$$
$$-4 \quad -4$$
$$y = -4$$

Q2: $2x + y - 1 = 0$

x-Intercept (Set y=0)

$$2x + (0) - 1 = 0$$
$$2x - 1 = 0$$
$$+1 \quad +1$$
$$2x = 1$$
$$\div 2 \quad \div 2$$
$$x = \tfrac{1}{2}$$

y-Intercept (Set x=0)

$$2(0) + y - 1 = 0$$
$$y - 1 = 0$$
$$+1 \quad +1$$
$$y = 1$$

Q3: $x - y + 1 = 0$
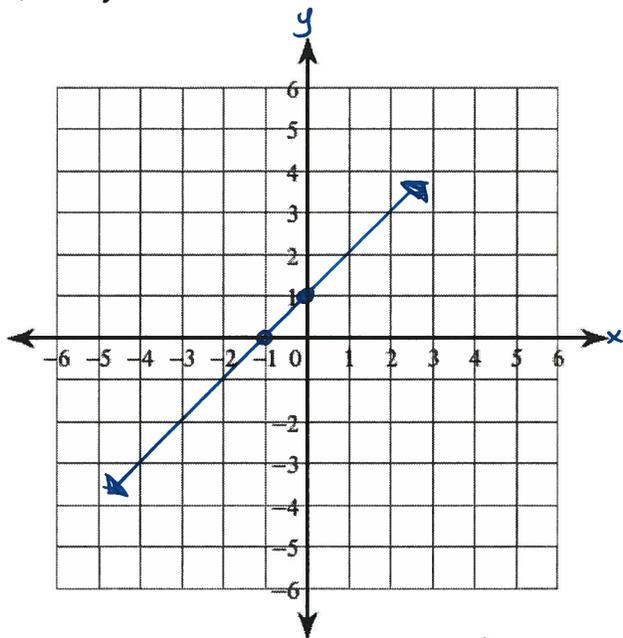
x-Intercept Set $y = 0$

$$x - (0) + 1 = 0$$
$$x + 1 = 0$$
$$-1 \quad -1$$
$$x = -1$$

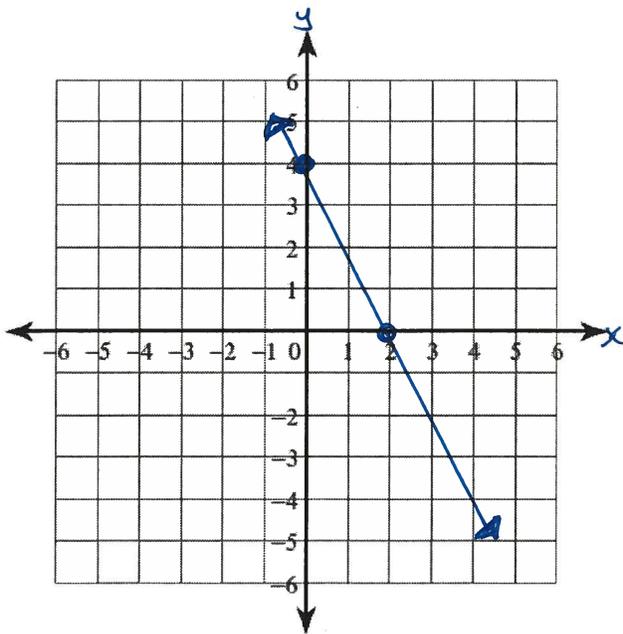**y-Intercept** Set $x = 0$

$$(0) - y + 1 = 0$$
$$-1y + 1 = 0$$
$$-1 \quad -1$$
$$-1y = -1$$
$$\div(-1) \quad \div(-1)$$
$$y = 1$$

Q4: $2x + y - 4 = 0$

x-int (set y = 0)

$$2x + (0) - 4 = 0$$
$$2x - 4 = 0$$
$$+4 \quad +4$$
$$2x = 4$$
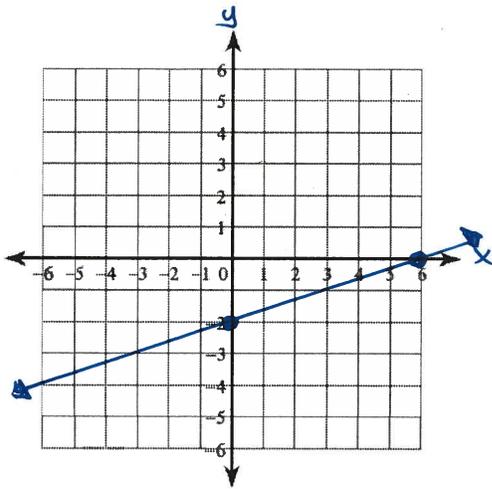$$\div 2 \quad \div 2$$
$$x = 2$$

y-int (set x = 0)

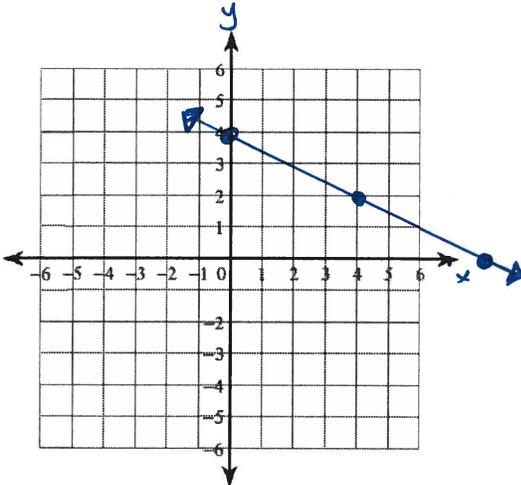$$2(0) + y - 4 = 0$$
$$y - 4 = 0$$
$$+4 \quad +4$$
$$y = 4$$

Q5: $x - 3y - 6 = 0$

$\underline{\text{x-int (set } y=0)}$

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

$x - 6 = 0$

$\quad +6 \quad +6$

$x = 6$

$\underline{\text{y-int (set } x=0)}$

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

$-3y - 6 = 0$

$\quad\quad +6 \quad +6$

$-3y = 6$

$\div(-3) \quad \div(-3)$

$y = -2$

Q6: $x + 2y - 8 = 0$

$\underline{\text{x-int (set } y=0)}$

$x + 2(0) - 8 = 0$

$x - 8 = 0$

$\quad +8 \quad +8$

$x = 8$

$\underline{\text{y-int (set } x=0)}$

$(0) + 2y - 8 = 0$

$2y - 8 = 0$

$\quad\quad +8 \quad +8$

$2y = 8$

$\div 2 \quad \div 2$

$y = 4$

Q7: $x - 2y + 4 = 0$
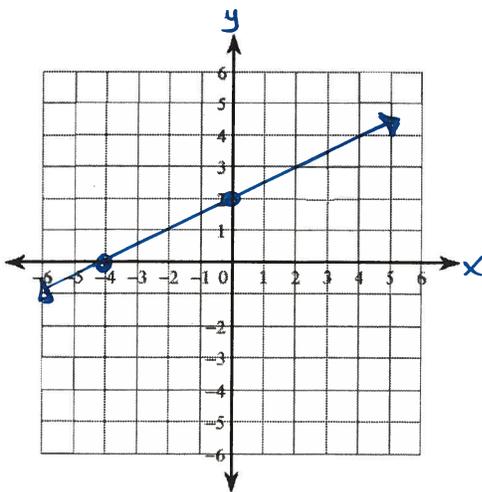
$\underline{\text{x-int (set } y=0)}$

$x - 2(0) + 4 = 0$

$x + 4 = 0$

$\quad -4 \quad -4$

$x = -4$

$\underline{\text{y-int (set } x=0)}$

$(0) - 2y + 4 = 0$

$-2y + 4 = 0$

$\quad\quad -4 \quad -4$

$-2y = -4$

$\div(-2) \quad \div(-2)$

$y = 2$

Q8: $2x + 3y - 6 = 0$

x-int (set y=0)

$2x + 3(0) - 6 = 0$

$2x - 6 = 0$

$+6 \quad +6$

$2x = 6$

$\div 2 \quad \div 2$

$x = 3$
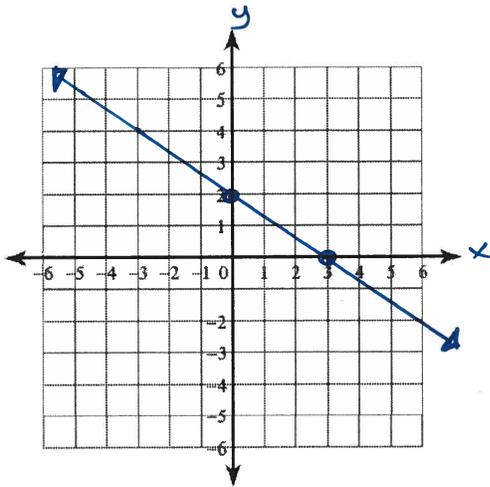
y-int (set x=0)

$2(0) + 3y - 6 = 0$

$3y - 6 = 0$

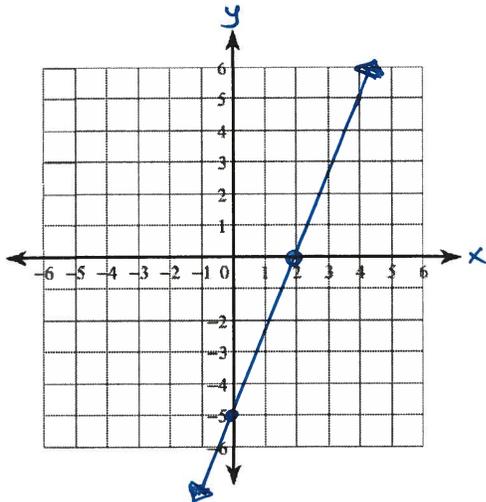$+6 \quad +6$

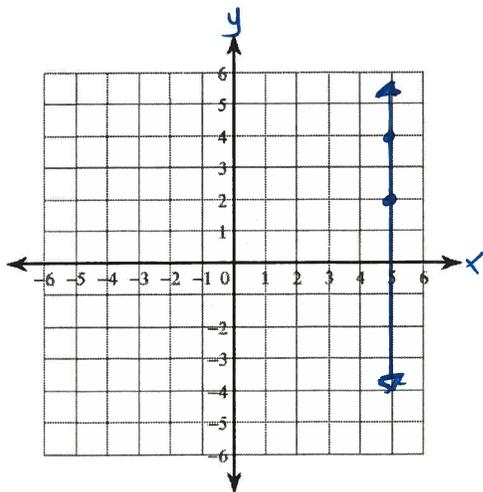$3y = 6$

$\div 3 \quad \div 3$

$y = 2$

Q9: $5x - 2y - 10 = 0$

x-int (set y=0)

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

$5x - 10 = 0$

$+10 \quad +10$

$5x = 10$

$\div 5 \quad \div 5$

$x = 2$

y-int (set x=0)

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

$-2y - 10 = 0$

$+10 \quad +10$

$-2y = 10$

$\div(-2) \quad \div(-2)$

$y = -5$

Q10: $x = 5$

No matter what, x=5.

when y is 2, x is 5 → (5,2)

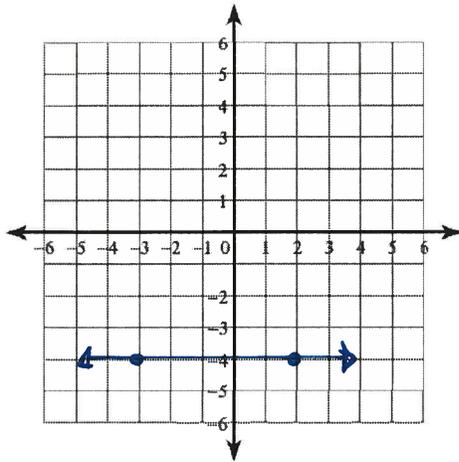when y= 4, x is 5 → (5,4)

Plot both points
and draw the line.

Note: Linear, but not a function.

Q11: $y = -4$

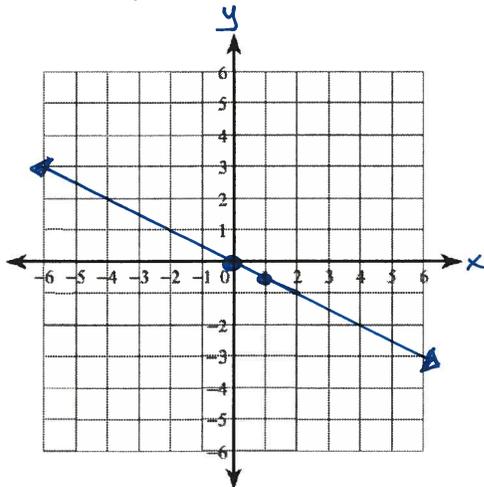No matter what, $y = -4$.

When $x = -3$, $y = -4$ → $(-3, -4)$
When $x = 2$, $y = -4$ → $(2, -4)$

Plot both points.

Q12: $x + 2y = 0$

x-int (Set y = 0)

$x + 2(0) = 0$
$x = 0$

y-int (Set x = 0)

$(0) + 2y = 0$
$2y = 0$
$\div 2 \quad \div 2$
$y = 0$

Only have one data point! Need a second one to graph a straight line.
Okay... what if x were 1?

$(1) + 2y = 0$
$-1 \qquad -1$
$2y = -1$
$\div 2 \qquad \div 2$
$y = -\frac{1}{2}$ → So $(1, -0.5)$

Now graph the two points!

Use the following information to answer Q13-Q15:

$$2x + 3y - 6 = 0$$

Q13: Determine the x-intercept and y-intercept.

x-int (Set y=0) :

$2x + 3(0) - 6 = 0$

$2x - 6 = 0$

$ +6 \quad +6$

$2x = 6$

$\div 2 \quad \div 2$

$x = 3$

y-int (Set x=0)

$2(0) + 3y - 6 = 0$

$3y - 6 = 0$

$ +6 \quad +6$

$3y = 6$

$\div 3 \quad \div 3$

$y = 2$

Q14: Write the equation in the form $y = mx + b$

$2x + 3y - 6 = 0$

$-2x -2x$

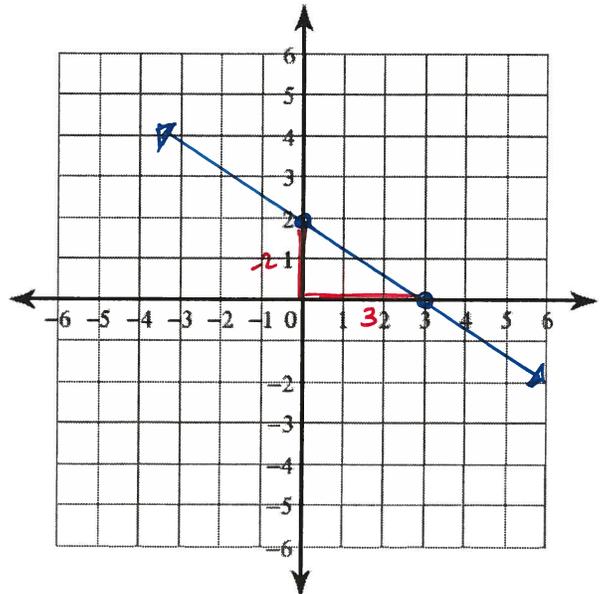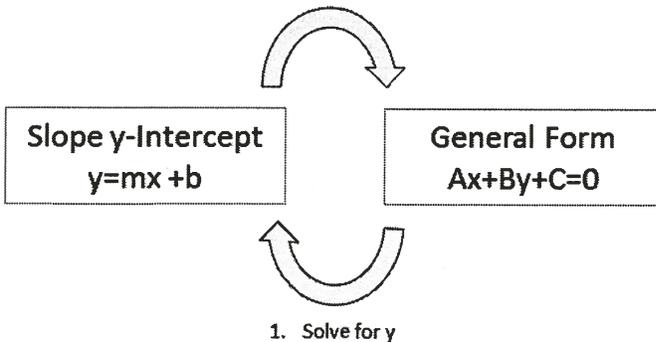$3y - 6 = -2x$

$ +6 \quad\quad +6$

$3y = -2x + 6$

$\div 3 \quad \div 3 \quad \div 3$

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

Q15: Graph the equation.

1. Bring all variables onto the same side.
2. Make "A" positive.
3. Multiply to remove fractions.

Slope y-Intercept	General Form
y=mx +b	Ax+By+C=0

1. Solve for y

Use the following information to answer Q16-Q18:

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

Q16: Determine the x-intercept and y-intercept.

x-int (Set y=0)

$3x - (0) + 6 = 6$
$3x + 6 = 0$
$ -6 \quad -6$
$3x = -6$
$\div 3 \quad \div 3$
$x = -2$

y-int (set x=0)

$3(0) - y + 6 = 0$
$-y + 6 = 0$
$ -6 \quad -6$
$-1y = -6$
$\div(-1) \quad \div(-1)$
$y = 6$

Q17: Write the equation in the form $y = mx + b$

$3x - y + 6 = 0$
$ +y \qquad +y$
$3x + 6 = y \quad \longrightarrow \quad y = 3x + 6$

Q18: Graph the equation.

1. Bring all variables onto the same side.
2. Make "A" positive.
3. Multiply to remove fractions.

Slope y-Intercept
y=mx +b

General Form
Ax+By+C=0

1. Solve for y