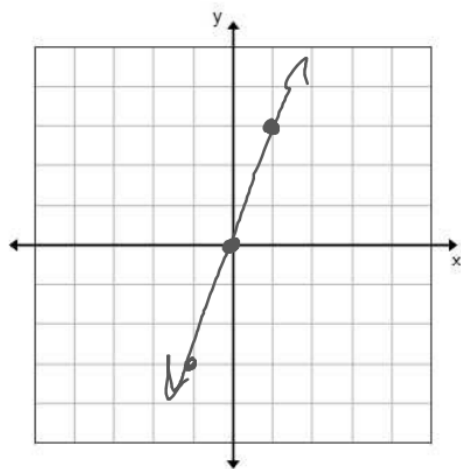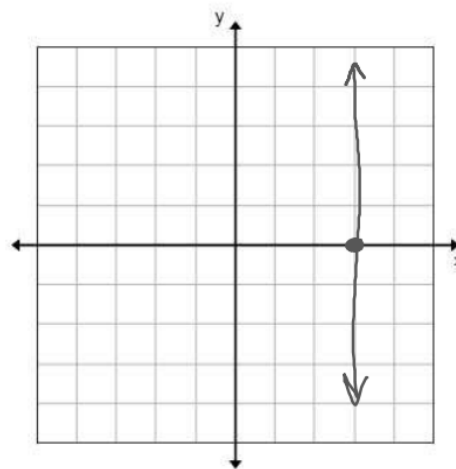**Warm-up:** Graph the following equations.
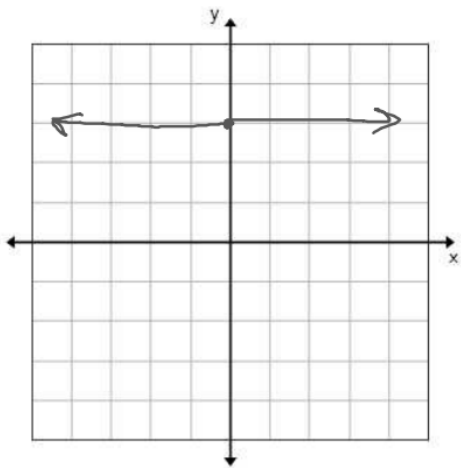
1. $y = 3x + 0$
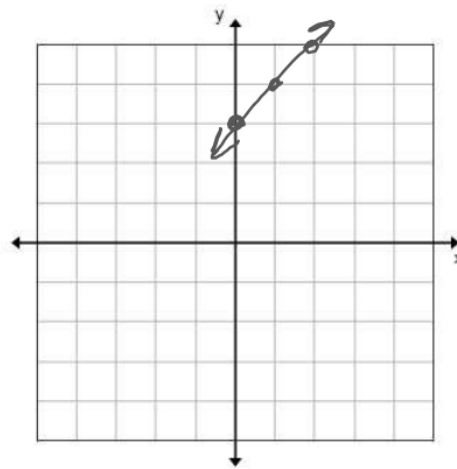

3. $x = 3$
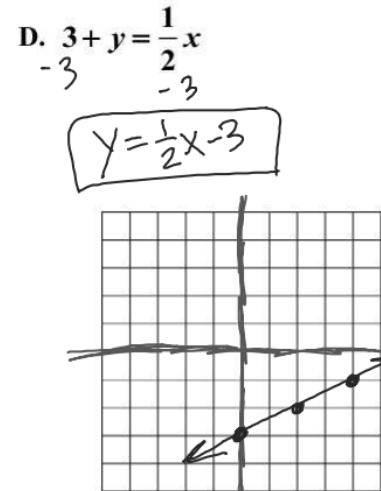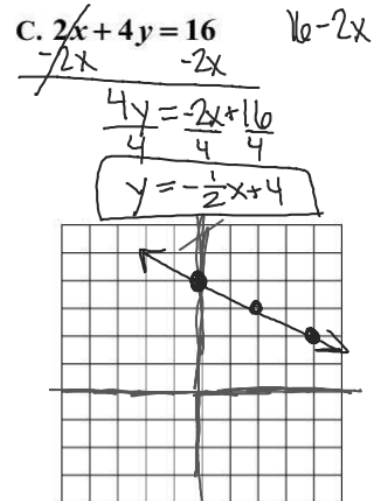

2. $y = 3$

4. $y = x + 3$

Ex 1: Graph each equation.

A. $y = -2x + 3$ ⟨start⟩

→ Down 2
Right 1

B. $y = \frac{1}{4}x - 2$ ⟨start⟩

→ up 1
Right 4

C. $2x + 4y = 16$ $16 - 2x$

$-2x \qquad -2x$

$\dfrac{4y}{4} = \dfrac{-2x}{4} + \dfrac{16}{4}$

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

D. $3 + y = \frac{1}{2}x$

$-3 \qquad\qquad -3$

$\boxed{y = \frac{1}{2}x - 3}$
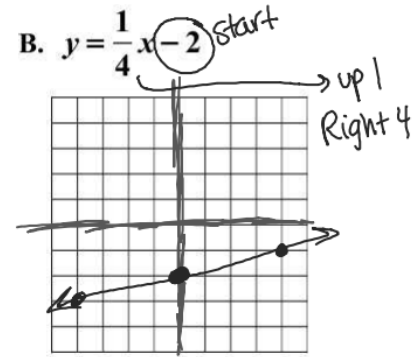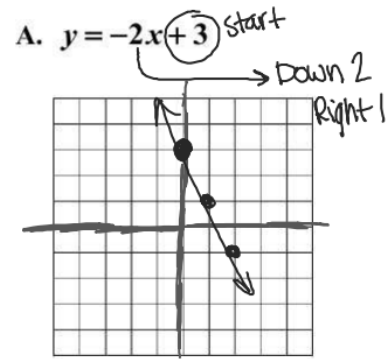
What if it isn't in slope intercept form?

1. Isolate y (Solve for y)

$y = MX + b$

2. $Ax + By = C$
Standard Form
Find the x & y intercepts

Ex 2: *x* and *y* Intercepts:

You are planning a dinner party and have $20 to spend on the meat. Chicken costs $2 per pound and beef is $5 per pound. The following is an equation to represent how many pounds of chicken (*x*), and how many pounds of beef (*y*) you might buy to spend exactly $20. $2x + 5y = 20$

$$Ax + By = C$$

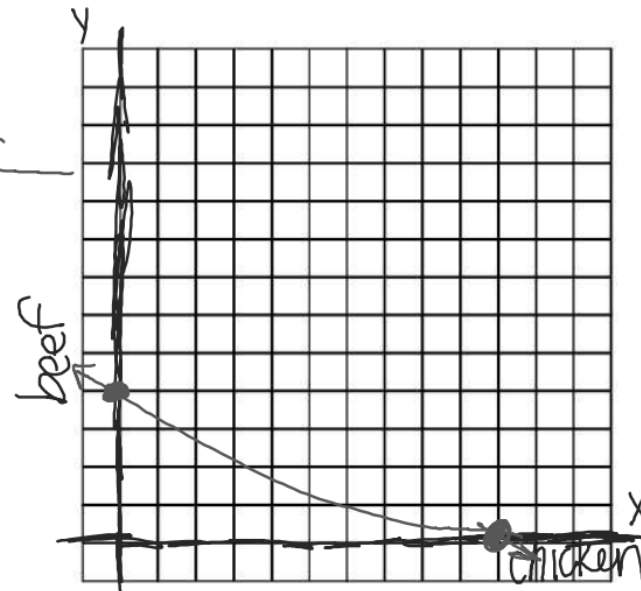A.   If you don't buy any beef, how much chicken can you buy? Graph this point on the graph below. What is this point?   10 lbs of chicken   X-intercept

B.   If you don't buy any chicken, how much beef can you buy? Graph this point on the graph below. What is this point?

4 lbs of beef
y-intercept

X-intercept $= C/A$

Y-intercept $= C/B$

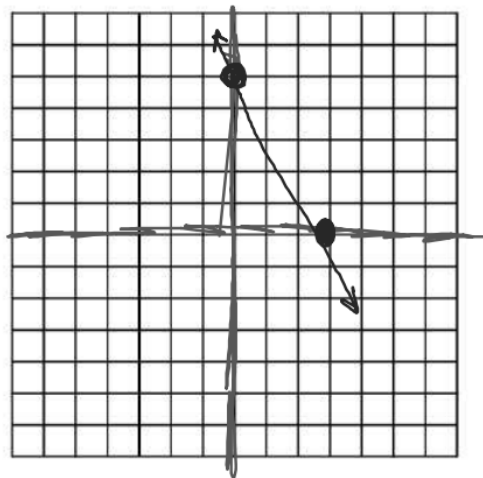**Ex 3: Find the *x* and *y* intercepts and graph.**

A. $5x + 3y = 15$

x-intercept: (3 , 0)
y-intercept: (0 , 5)

$15/5 = 3$ $15/3 = 5$

B. $2x - 3y = 6$

x-intercept: (3 , 0)
y-intercept: (0 , -2)

$6/2 = 3$ $6/-3 = -2$