4.3: Graph Linear Equations Using *x* and *y* Intercepts

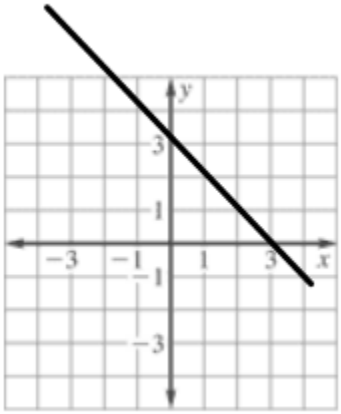
Goals: *Identify *x* and *y* intercepts on a graph
*Find *x* and *y* intercepts from a linear equation
*****Graph lines using *x* and *y* intercepts
*****Interpret the meaning of *x* and *y* intercepts

***x* – intercept:**

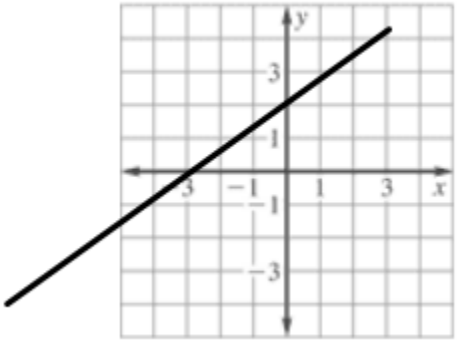
***y* – intercept:**

Identify the *x* and *y* intercepts of the lines graphed.

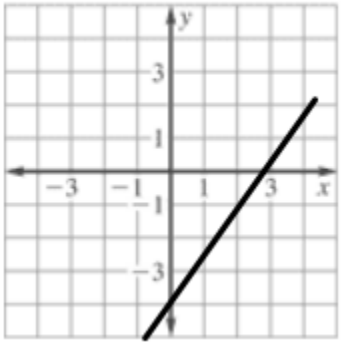
Ex:



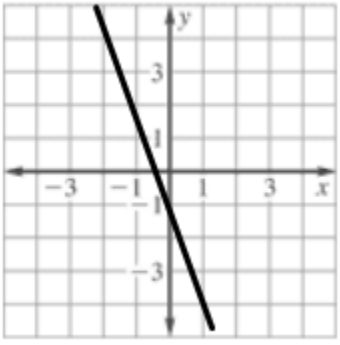
Ex:



Ex:

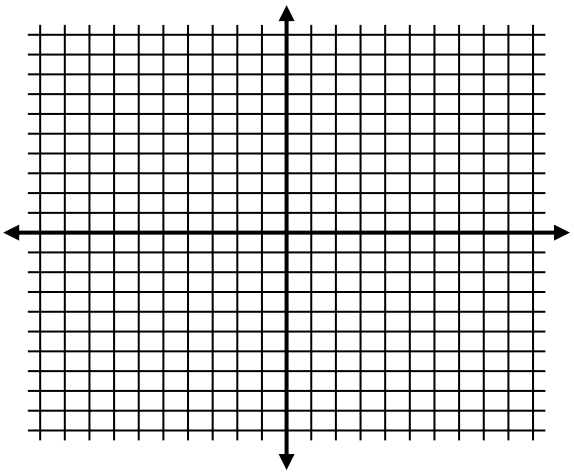


Ex:

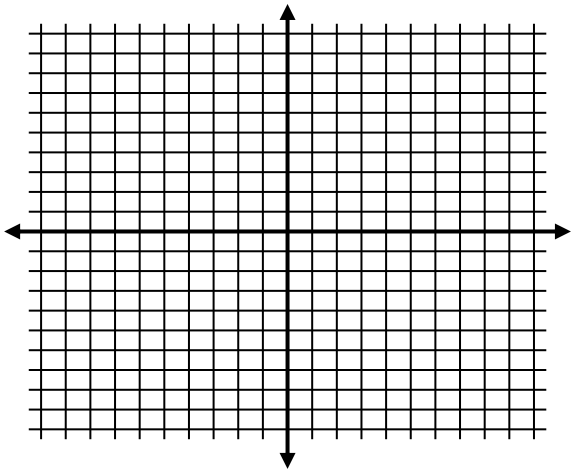


Graph each line using the *x* and *y* intercepts.

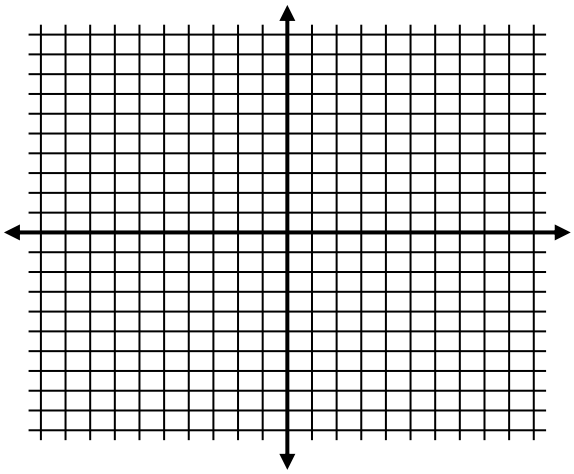
Ex: $2x + 7y = 28$



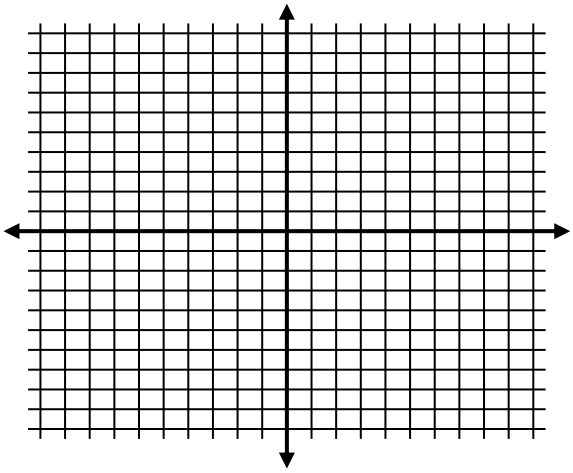
Ex: $3x + 2y = 6$



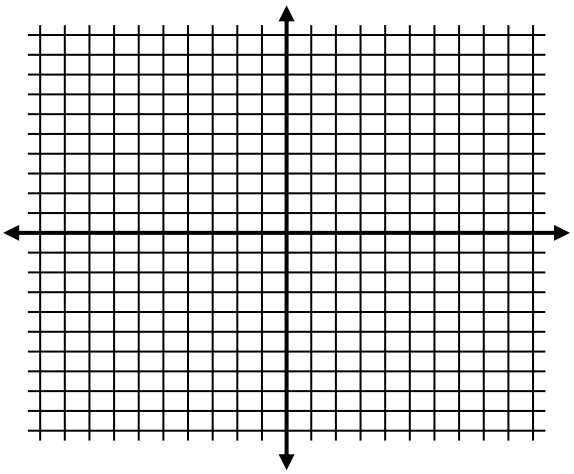
Ex: $4x - 2y = 10$



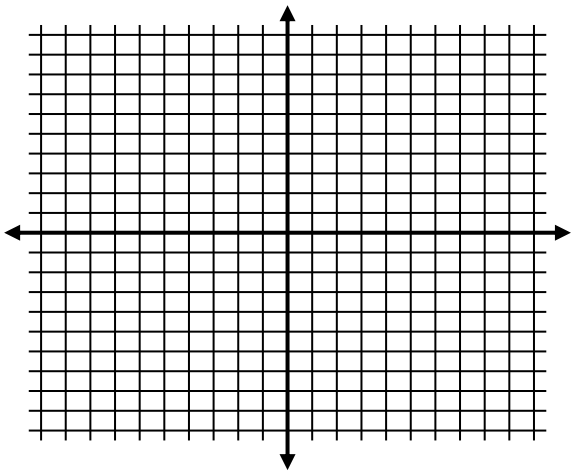
Ex: $-3x + 5y = -15$



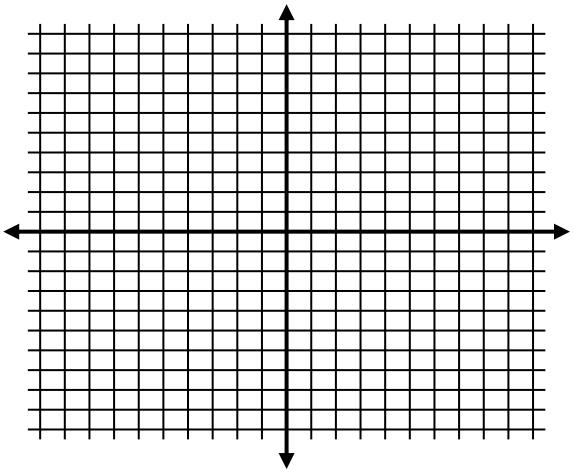
Ex: $x + 2y = 4$



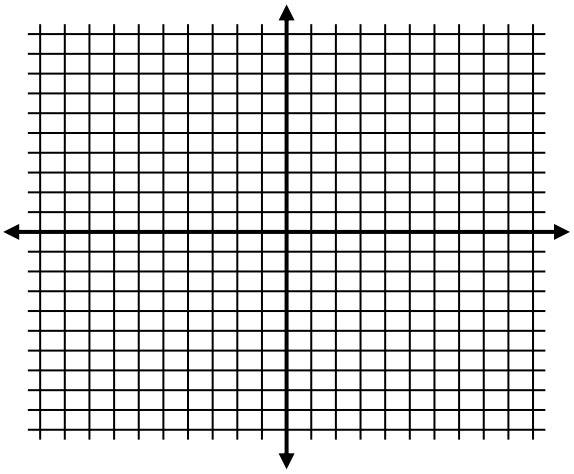
Ex: $3x - 4y = 12$



Ex: $y = x - 4$



Ex: $y = 2x + 6$



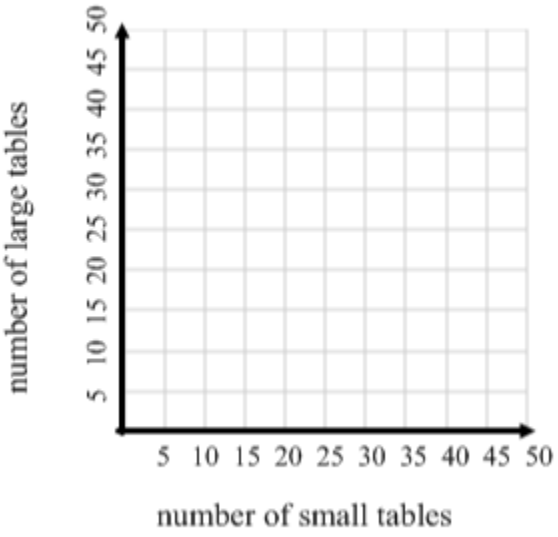
Ex: You are helping plan an awards banquet for your school and you need to rent tables to seat 180 people. Tables come in two sizes. Small tables seat 4 people and large tables seat 6 people.

a) Let x equal the number of small tables and y equal the number of large tables. Write an equation to represent the situation.

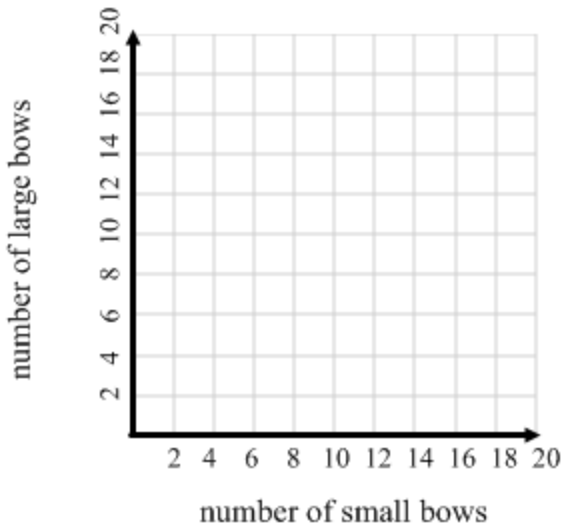
b) Graph the equation.

c) What do the intercepts mean?

d) Give 4 possible combinations of small and large tables you could use.



Ex: You make and sell decorative bows. You sell small bows for $3 and large bows for $5. You want to earn $60. Write an equation to represent the situation. Graph your equation. Give two possible combinations of small and large bows you could sell.



Ex: A submersible is designed to explore the ocean floor at –13,000 feet. The submersible ascends to the surface at a rate of 60 feet/minute. The equation:

$$e = 650t - 13000$$

models this situation, where e is elevation and t is time (in minutes) since it began to ascend.

a) Graph the equation.

b) Explain the meaning of the x and y intercepts.

c) Identify the domain and range.