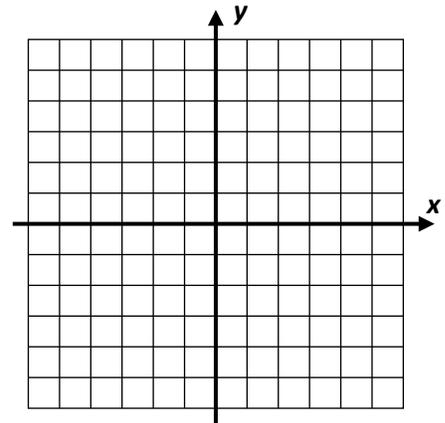


**Algebra 1 CC**  
**Assignment #49**  
**Modeling with Systems of Equations**

1. A local theater is showing an animated movie. They charge \$5 per ticket for a child and \$12 per ticket for an adult. They sell a total of 342 tickets and make a total of \$2550. We want to try to find out how many of each type of ticket they sold. Let  $c$  represent the number of children's tickets sold and  $a$  represent the number of adult tickets sold.
  - (a) Write an equation that represents the fact that 342 total tickets were sold.
  - (b) Write an equation representing the fact that they made a total of \$2550.
  - (c) Solve the system you created in (a) and (b) by the Method of Elimination.
2. A catering company is setting up tables for a big event that will host 764 people. When they set up the tables they need 2 forks for each child and 5 forks for each adult. The company ordered a total of 2992 forks. Set up a system of equations involving the number of adults,  $a$ , and the number of children,  $c$ , and solve to find out how many of each attended the event.
3. Ilida went to Minewaska State Park one day this summer. All of the people at the park were either hiking or bike riding. There were 178 more hikers than bike riders. If there were a total of 676 people at the park, how many were hiking and how many were riding their bikes?
4. Juanita and Keenan own a camping supply store and just put in an order for flashlights and sleeping bags. The number of flashlights ordered was five times the number of sleeping bags. The flashlights cost \$12 each and the sleeping bags cost \$45 each. If the total cost for the flashlights and sleeping bags was \$1785, how many flashlights and how many sleeping bags did Juanita and Keenan order?

R1. Graph the solution set to the inequality  $y < -2x + 4$ .

State one point that lies in the solution set and one point that does not.



R2. Eric considers a sequence of numbers given by the following definition  $b_1 = 7$  and  $b_i = b_{i-1} + 4$  and decides the first 4 numbers are:

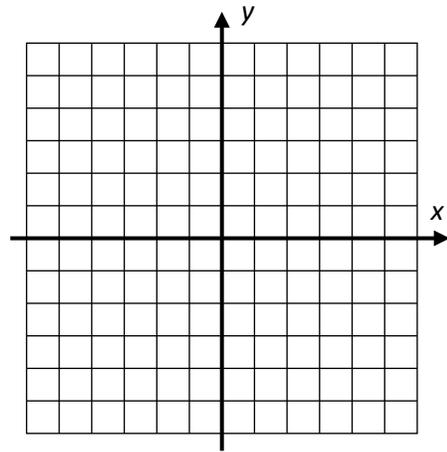
4, 11, 18, 25

- (a) Interpret in your own words, what the sequence is saying and what he actually did.
- (b) What should the first four numbers be?

R3. A rectangle is surrounded by the lines whose equations are shown below. Graph these lines and find the area of the rectangle enclosed by them.

$$x = -4 \quad x = 3$$

$$y = -2 \quad y = 2$$



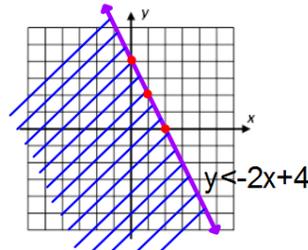
1. (a)  $c + a = 342$   
 (b)  $5c + 12a = 2550$   
 (c)  $a = 120 \quad c = 222$

2.  $2c + 5a = 2992$   
 $c + a = 764$   
 $a = 488$   
 $c = 276$

3.  $h + b = 676$   
 $h - b = 178$   
 $h = 427$   
 $b = 249$

4.  $f = 5s$   
 $12f + 45s = 1785$   
 $f = 85$   
 $s = 17$

- R1. (0,0) is in solution set  
 (5,3) is NOT in solution set



- R2. (a) The first term is 7 and then add 4 to get each term after that. Eric started with 4 and then added 7 each time.  
 (b) 7, 11, 15, 19

- R3.  $A = 28 \text{ units}^2$

