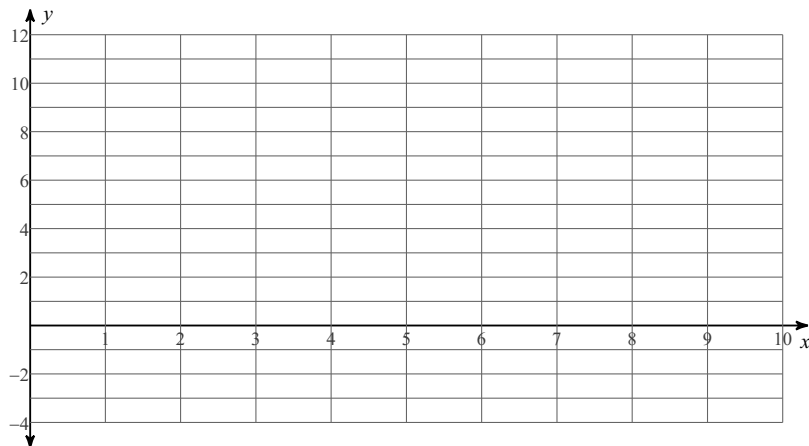


Systems of Equations & Inequalities by Graphing Date \_\_\_\_\_ Period \_\_\_\_\_

**Today, the temperature in New York is  $-1^{\circ}$  and is expected to rise by  $3^{\circ}$  per day. It is  $6^{\circ}$  in Alaska and expected to fall  $1^{\circ}$  every 2 days.**

- 1) Write an equation to determine New York's temperature  $y$  in the next  $x$  days.
- 2) Write an equation to determine Alaska's temperature  $y$  in the next  $x$  days.
- 3) Label each axis and graph both equations on the axes below.



- 4) Where do the lines cross? What does this represent in this situation?

**You and your friends want to go to a skate park on Saturday. There are two parks in your neighborhood, Puffin Park and Dragon Park. The parks both charge for skating at their park as follows:**

**Puffin Skate Park : \$3.00 to get into the park and \$1.00 for every hour.**

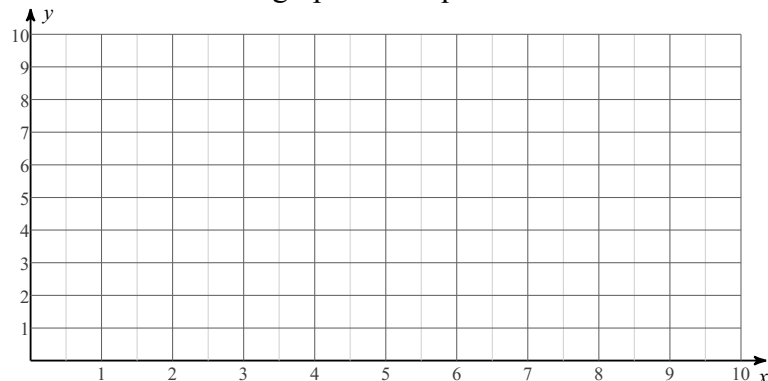
**Dragon Skate Park: \$5.00 to get into the park and \$0.50 for every hour.**

- 5) Write an equation to represent the total cost,  $y$ , after  $x$  hours for each of the parks.

Puffin Equation:

Dragon Equation:

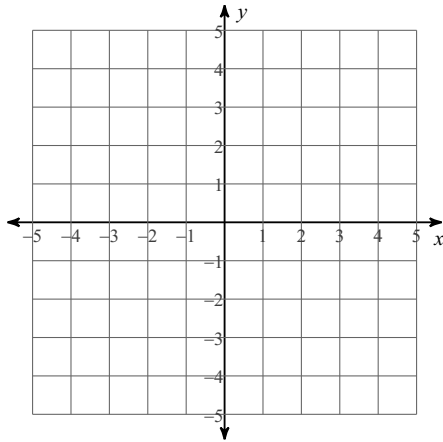
- 6) Label each axis and graph both equations on the axes below.



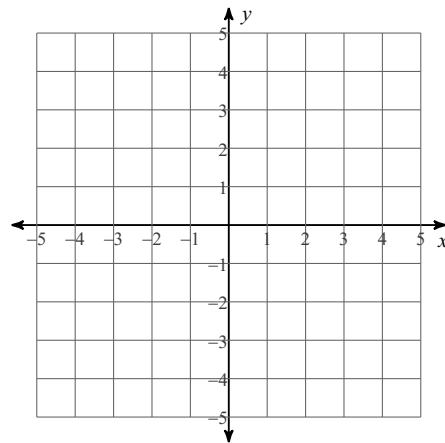
- 7) Which Skate Park would you choose, and why?

Solve each system by graphing.

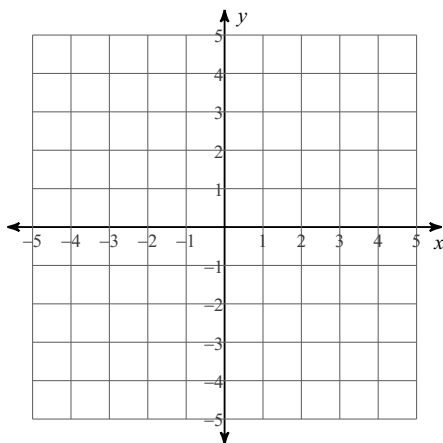
$$8) \ y = \frac{1}{2}x - 3$$
$$y = \frac{5}{2}x + 1$$



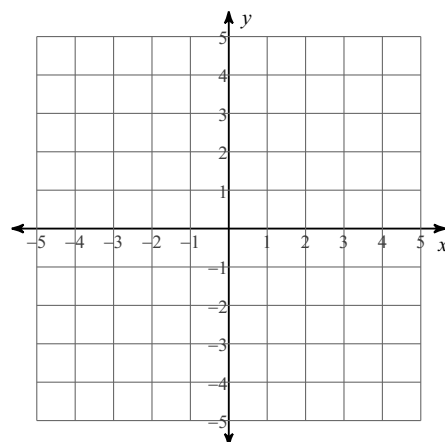
$$9) \ y = \frac{3}{2}x - 4$$
$$x = 2$$



$$10) \ y = -x + 2$$
$$y = x + 4$$

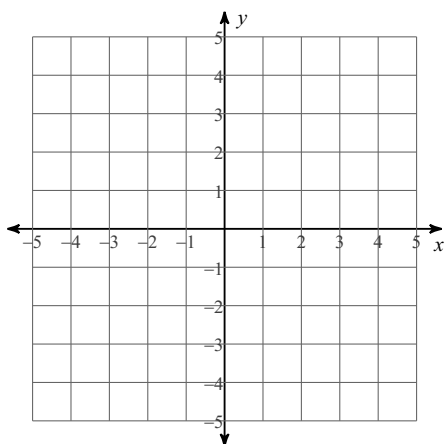


$$11) \ y = \frac{7}{3}x - 4$$
$$y = \frac{1}{3}x + 2$$



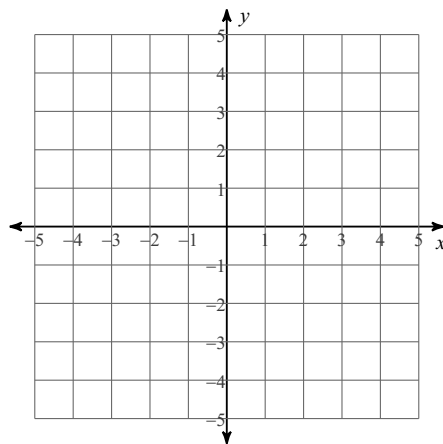
$$12) \ y = \frac{2}{3}x - 1$$

$$2x - 3y = 3$$



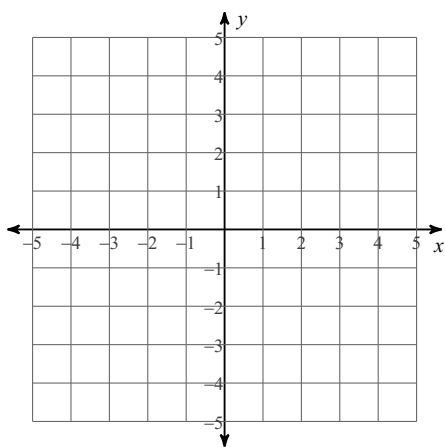
$$13) \ 2x - y = -2$$

$$y = 4$$



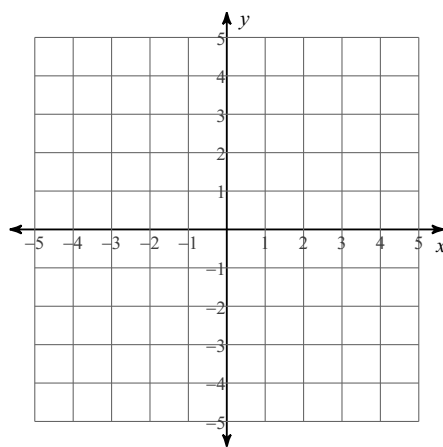
$$14) \ 2x - 3y = 3$$

$$2x - 3y = -3$$



$$15) \ 3x - 4y = -16$$

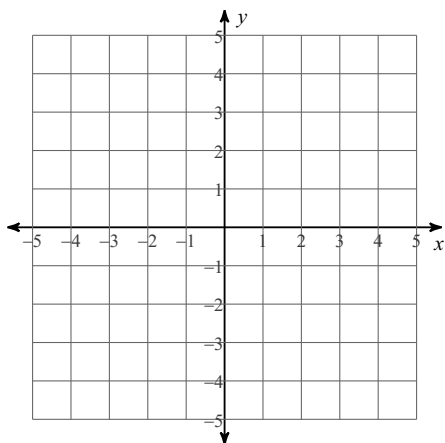
$$x + 2y = -2$$



Sketch the solution to each system of inequalities.

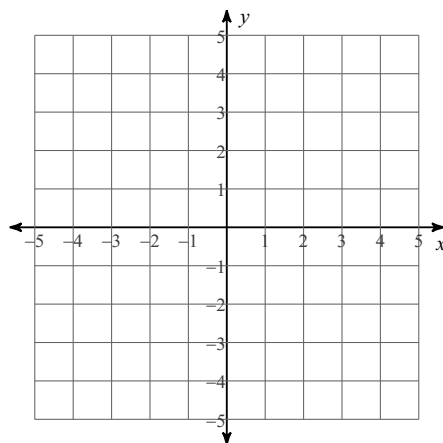
16)  $y \geq -\frac{5}{3}x + 3$

$y > \frac{1}{3}x - 3$

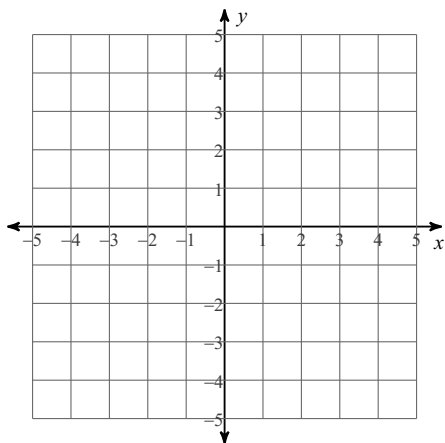


17)  $y \geq \frac{1}{3}x + 2$

$y < -\frac{2}{3}x - 1$



18)  $2x + 3y \leq -3$   
 $2x - 3y > -9$



19)  $x - y \geq -3$   
 $x \leq -1$

