

Name: _____

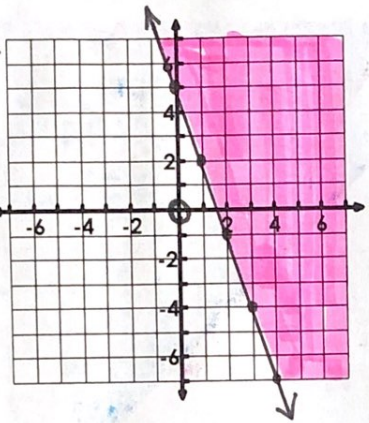
Date: _____

Graphing Systems of Inequalities Homework

1. $3x + y \geq 5$
 $-3x \quad -3x$

$y \geq -3x + 5$
 solid

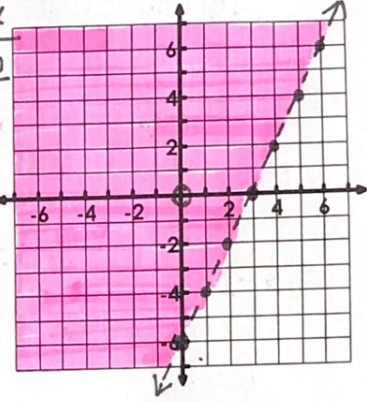
$0 \geq -3(0) + 5$
 $0 \geq 5$
 X



2. $2x - y < 6$
 $-2x \quad -2x$

$y < -2x + 6$
 dashed

$0 > 2(0) - 6$
 $0 > -6$
 ✓

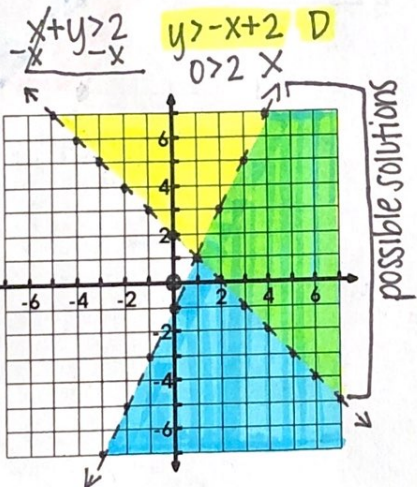


3. $x + y > 2$

$2x - y > 1$
 $-2x \quad -2x$

$y < 2x - 1$
 D

$0 < -1$
 X

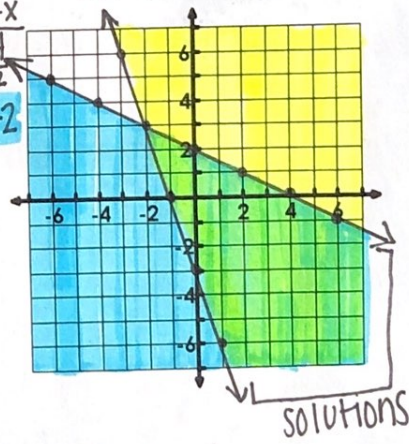


4. $3x + y \geq -3$

$y \geq -3x - 3$ solid
 $0 \geq -3$ ✓

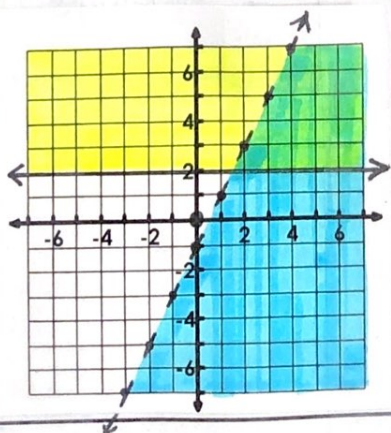
$x + 2y \leq 4$
 $-x \quad -x$

$y \leq -\frac{1}{2}x + 2$
 solid
 $0 \leq 2$
 ✓



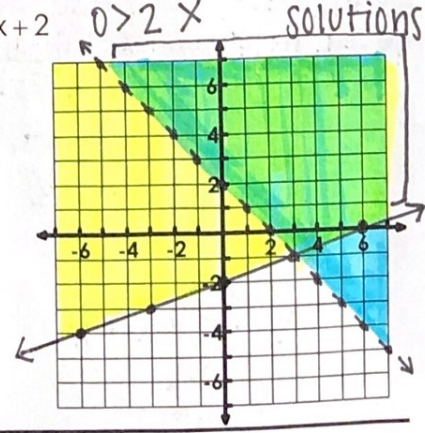
5. $y \geq 2$ solid $0 \geq 2x$

$y < 2x - 1$
 dashed
 $0 < -1$
 X



6. $y \geq \frac{1}{3}x - 2$ $0 \geq -2$ ✓

$y > -x + 2$ $0 > 2x$



7. Mikayla decide to work two jobs over the summer to save for college. She makes \$15 per hour for babysitting her neighbor's kids and \$9 per hour at the local pool. Mikayla wants to make at least \$225 per week and wants to work more than 20 hours each week.

A. Define your variables.

x : babysitting hours y : pool hours

B. Write a system of inequalities that represents the scenario.

$$\begin{aligned} x + y &> 20 \\ 15x + 9y &\geq 225 \end{aligned}$$

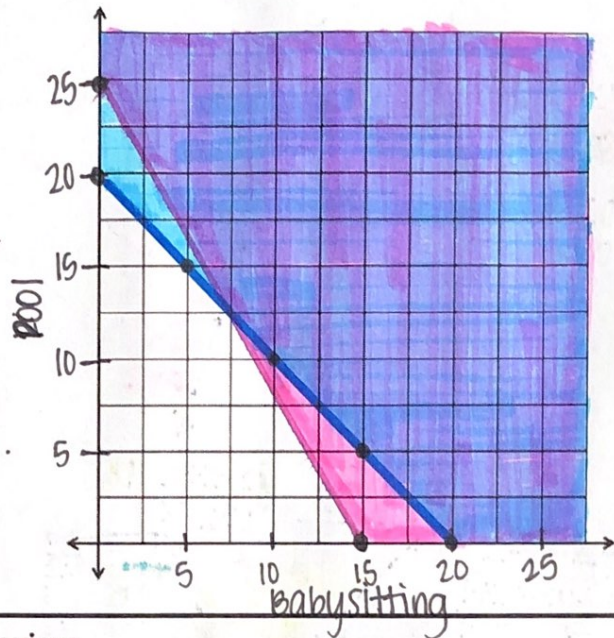
C. Graph the system. Be sure to label your axes.

$$\begin{aligned} y &> -x + 20 \\ y &\geq -\frac{5}{3}x + 25 \end{aligned}$$

D. Write two possible solutions using full sentences based on the graph.

She could work 25 hours at both jobs.

She could work 10 hours babysitting and 16 at the pool



Review

8. Which value of k would create a system with **no solution**?

$$\begin{aligned} y &= -5x + 1 \\ y &= kx - 3 \end{aligned}$$

A. 5

B. 1

C. -5

D. -3

Same slope

9. Wilson and Amaya are selling cookie dough for a school fundraiser. Wilson sold 5 packages of chocolate chip cookie dough and 12 packages of oatmeal cookie dough for \$301. Amaya sold 4 packages of chocolate chip and 4 oatmeal for a total of \$140. Find the cost of each type of cookie dough.

$$\begin{aligned} 5x + 12y &= 301 \rightarrow 5x + 12y = 301 \\ -3(4x + 4y) &= -3(140) \rightarrow -12x - 12y = -420 \\ \hline -7x &= -119 \\ x &= 17 \end{aligned}$$

$$\begin{aligned} 5(17) + 12y &= 301 \\ 85 + 12y &= 301 \\ 12y &= 216 \\ y &= 18 \end{aligned}$$

Chocolate chip costs \$17 and oatmeal costs \$18

10. Factor $9x^2 - 4$

$$(3x + 2)(3x - 2)$$

11. Factor $\frac{2x^2 - 50}{2}$

$$= 2(x + 5)(x - 5)$$

11. Factor $2x^2 - 17x + 35$

$$(x - 5)(2x - 7)$$

12. Factor $\frac{3x^2 + 36x + 105}{3}$

$$3(x + 6)(x + 7)$$