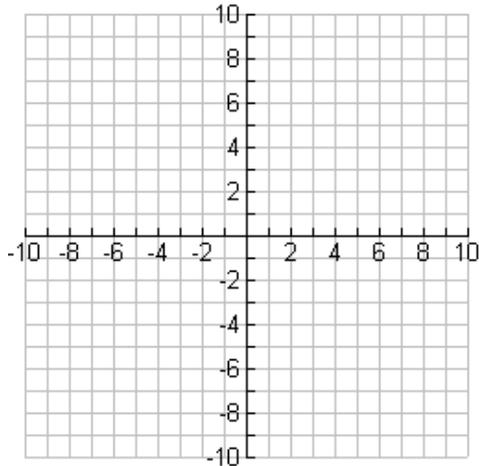


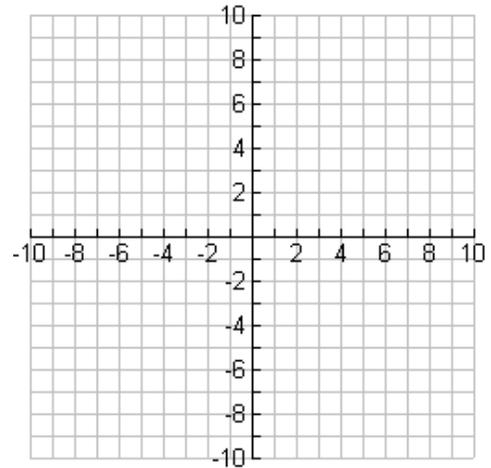
Test C: Linear Systems and Inequalities

Graph the systems of inequalities or equations. Clearly label your solution region or point.

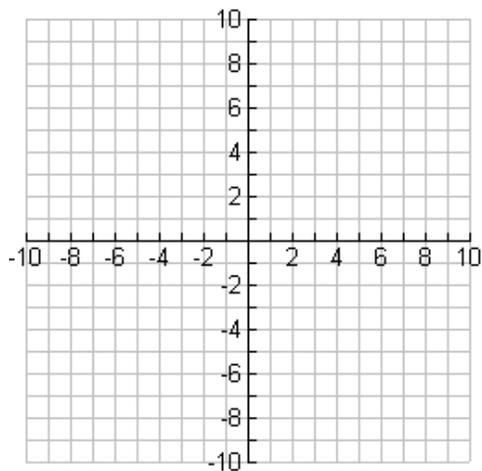
1. $y = \frac{1}{2}x + 1$
 $y = -\frac{3}{2}x + 5$



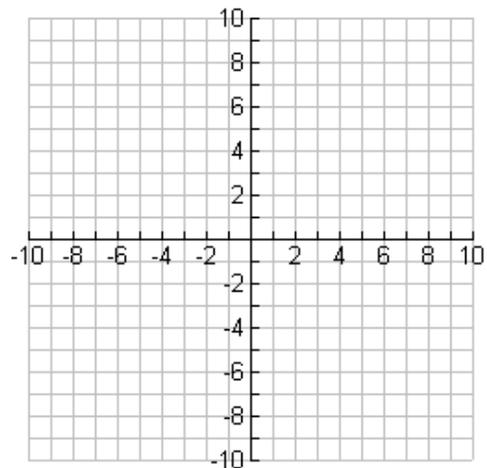
2. $-2x + 4y = 12$
 $6x + 4y = 12$



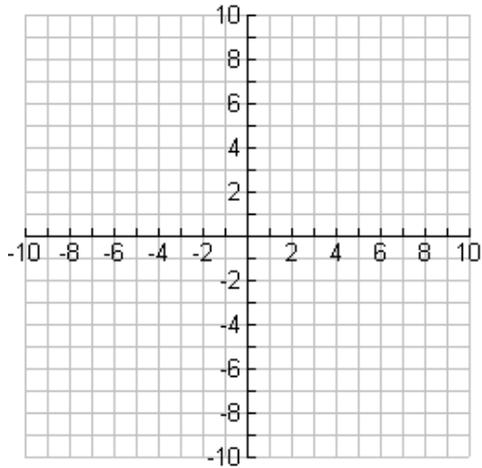
3. $4x - 11y = -44$
 $4x - 11y = 44$



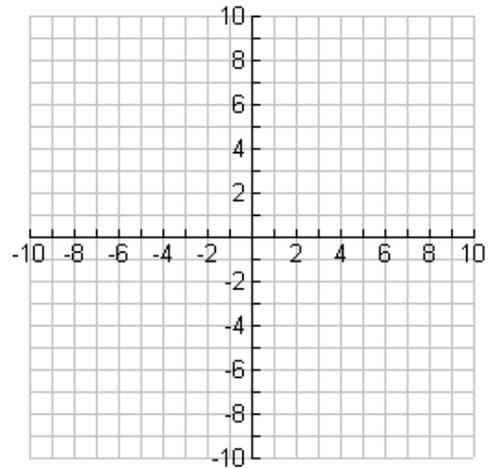
4. $y = 2.5 - \frac{1}{2}x$
 $3x + 6y = 15$



5.
$$\begin{aligned} 3x - 2y &\leq -4 \\ x + y &< -2 \end{aligned}$$



6.
$$\begin{aligned} y &\leq 5x + 1 \\ y &> -x - 2 \end{aligned}$$



7. Determine if the point $(-3, 3)$ is a solution of the system of equations. **Show your work.**

$$3x + y = -6$$

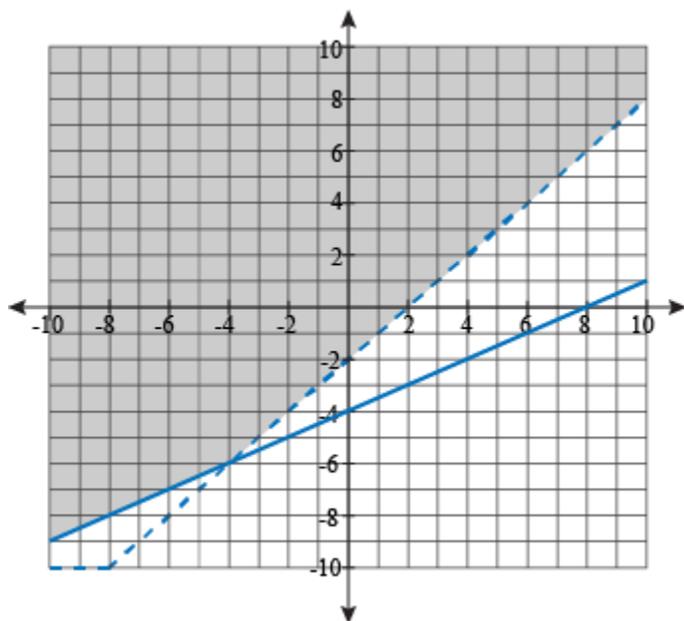
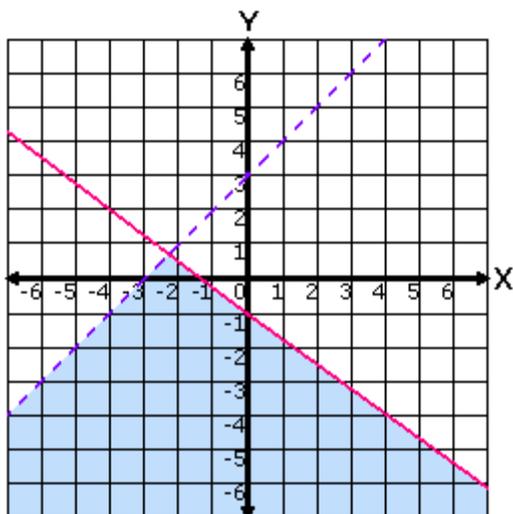
$$-x - 2y = -3$$

8. Determine if the point $(1, -2)$ is a solution of the system of inequalities. **Show your work.**

$$2x + 3y < 8$$

$$-3x + 2y \leq 1$$

9. Given the solution to the system of inequalities write the system of inequalities that matches the graph



10. Use Desmos to determine where the system intersects.

$$-3x + y = -5$$

$$5x - 8y = -17$$

11. Carly is training for an upcoming fitness competition and is trying to find a breakfast combination that meets her nutritional requirements of **500 calories** and **25 grams of protein**. One serving of her cereal of choice has **100 calories and 4 grams of protein**. Her favorite brand of peanut butter contains **75 calories and 5 grams** of protein per serving.

Write a system of equations and then use Desmos to find the number of servings for each type of food that would meet both of her nutrition goals.

12. Charter-boat fishing for walleyes is popular on Lake Erie. The charges for an eight-hour charter trip for 2 companies are the following: Wally's charges \$40 per person with a boat rental of \$60. Pike's charges \$35 per person with a \$75 boat rental

a) Write an expression for **each** company to represent what they will be charging:

Wally's _____

Pike's _____

b) For how many people will their costs be the same? (Find the point of intersection)

c) Explain what the point of intersection from *part c* means in this context.

d) Determine which service is more economical for a party of 2 and for a party of 10. Justify your answer.