

1. Write the equation of the line that passes through  $(-5, 7)$  and  $(3, 23)$

$$m = \frac{23-7}{3-(-5)} = \frac{16}{8} = 2$$

$$y - y_1 = m(x - x_1)$$

$$y - 23 = 2(x - 3)$$

$$y - 23 = 2x - 6$$

$$\begin{array}{r} +23 \qquad +23 \\ \hline y = 2x + 17 \end{array}$$

2. Solve for k:

$$\begin{array}{r} -4g - 8k = 24 \\ +4g \qquad +4g \\ \hline -8k = 4g + 24 \\ \frac{-8}{-8} \qquad \frac{4g}{-8} \qquad \frac{24}{-8} \\ k = -\frac{1}{2}g - 3 \end{array}$$

3. Solve:  $y = 2x$   
 $5x - y = 9$

$$5x - 2x = 9$$

$$\frac{3x}{3} = \frac{9}{3}$$

$$x = 3$$

$$\begin{array}{l} y = 2(3) \\ y = 6 \end{array}$$

$$(3, 6)$$

1. Suppose you buy flour and cornmeal in bulk to make flour tortillas and corn tortillas. Flour costs \$1.50 per pound and cornmeal costs \$2.50 per pound. You want to spend less than \$25 on flour and cornmeal, but you need at least 6 pounds altogether.

$$x = \text{flour (lbs)} \geq y = \text{cornmeal (lbs)} <$$

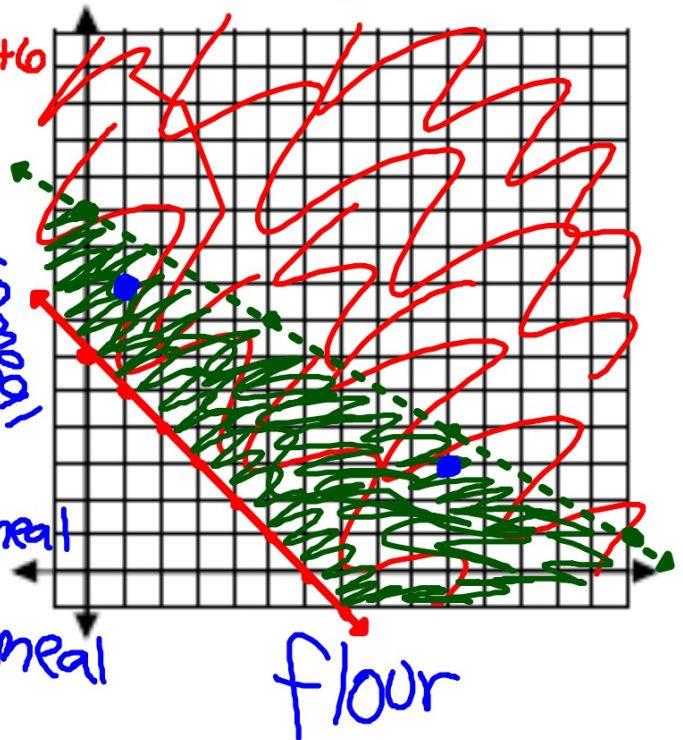
- a. Write and graph a system of linear inequalities:

$$\begin{aligned} x + y &\geq 6 & y &\geq -x + 6 \\ 1.50x + 2.50y &< 25 & & \\ -1.50x & & -1.50x & \\ \hline 2.5y &< -1.5x + 25 & & \\ 2.5 & & 2.5 & 2.5 \\ \hline y &< -\frac{3}{5}x + 10 \end{aligned}$$

- b. Write two possible solutions:

i. 10 lbs flour, 3 lbs cornmeal

ii. 1 lb flour, 8 lbs cornmeal



2. A seafood restaurant owner orders perch and salmon. Perch is \$4/lb and salmon is \$3/lb. He wants to buy at least 50 pounds of fish but cannot spend more than \$240.

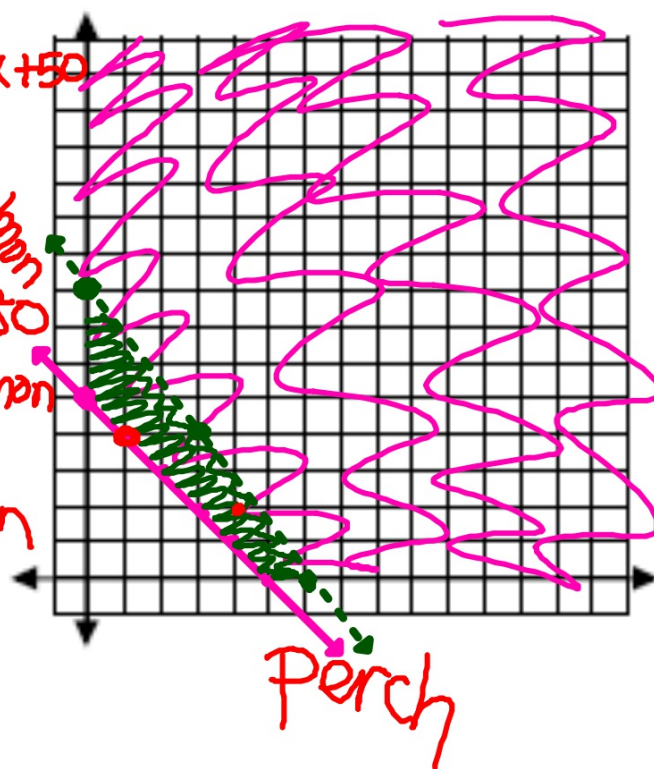
$x = \text{perch (lbs)}$   
 $y = \text{salmon (lbs)}$

- a. Write and graph a system of linear inequalities:

$$\begin{aligned} x + y &\geq 50 & y &\geq -x + 50 \\ 4x + 3y &< 240 & & \\ \hline -4x & & -4x & \\ 3y &< -4x + 240 & \text{Salmon} & \\ y &< -\frac{4}{3}x + 80 & & \end{aligned}$$

- b. Write two possible solutions:

- 10 lb perch, 40 lbs salmon
- 40 lb perch, 20 lbs salmon



3. The "We Sell CDs" website plans to purchase ads in a local newspaper to advertise their site. Their operating budget will allow them to spend at most \$3000 on this advertising adventure. An ad will cost \$30 to appear in the weekday paper and \$50 to appear in the weekend edition. They plan to run at least 20 ads.

- a. Write and graph a system of linear inequalities:

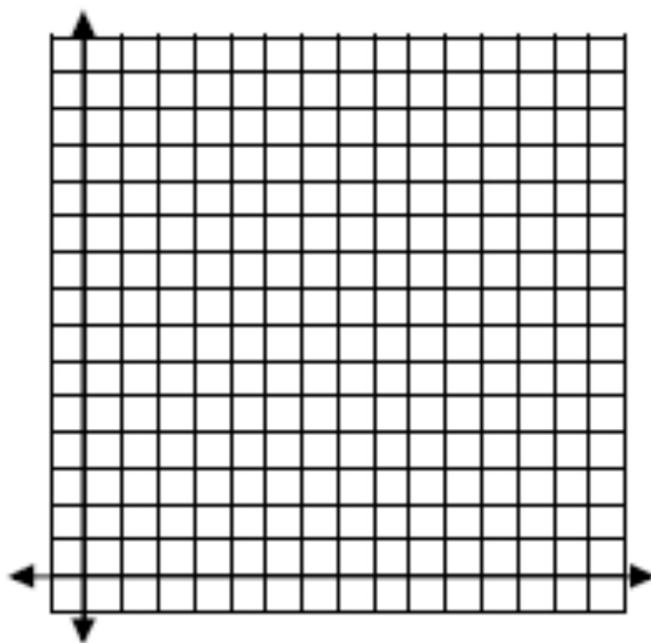
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- b. Write two possible solutions:

i. \_\_\_\_\_

ii. \_\_\_\_\_



4. Mary knits scarves and sweaters to sell. Scarves take 2 hours to knit and sweaters take 10 hours. Mary would like to spend no more than 40 hours per week knitting and knit at least 5 items per week.

- a. Write and graph a system of linear inequalities:

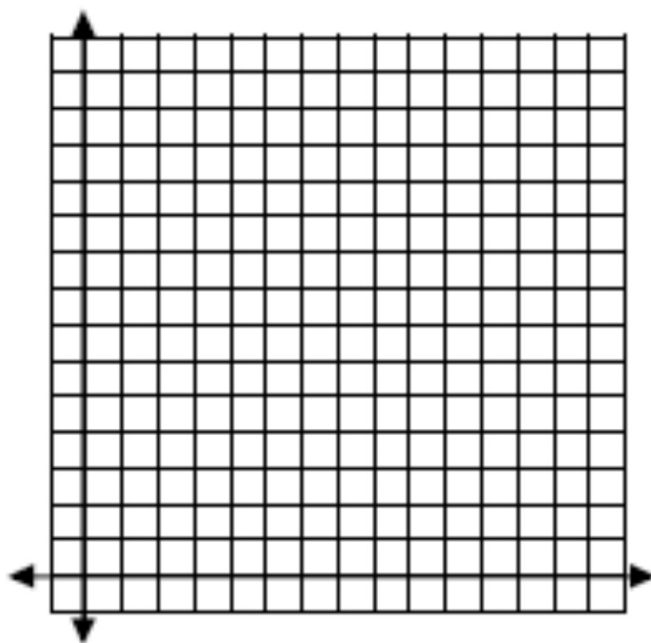
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- b. Write two possible solutions:

i. \_\_\_\_\_

ii. \_\_\_\_\_



5. A clothing store has a going-out-of business sale. They are selling pants for \$8.99 and shirts for \$3.99. You can spend as much as \$60 and want to buy at least two pairs of pants.

- a. Write and graph a system of linear inequalities:

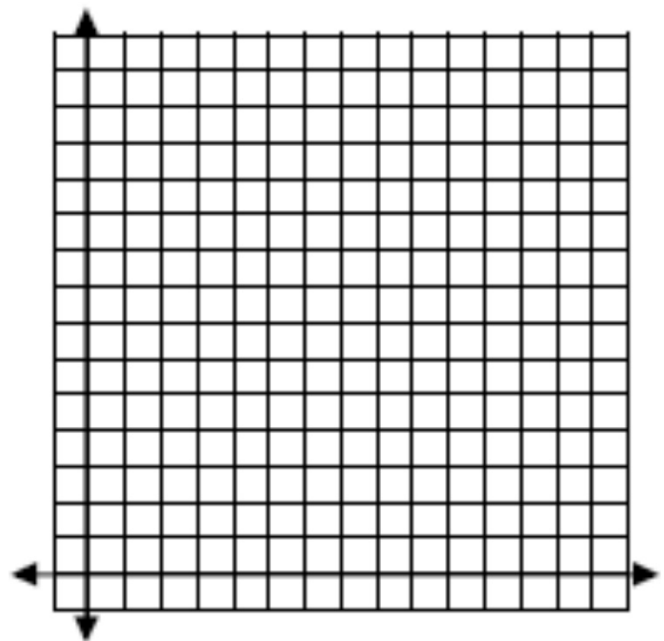
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- b. Write two possible solutions:

i. \_\_\_\_\_

ii. \_\_\_\_\_





6. You'd like to see how many baseball and soccer games you can attend this spring. Travel time for baseball games is 2 hours and soccer games is 1 hour. You would like to spend no more than 15 hours traveling to the games. In total, you would like to attend at least 8 games.

- a. Write and graph a system of linear inequalities:

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- b. Write two possible solutions:

i. \_\_\_\_\_

ii. \_\_\_\_\_

- c. Suppose we decide on attending 4 baseball games, what is the range of soccer games you can attend?

- d. Suppose we decide on attending 9 soccer games, what is the range of baseball games you can attend?

- e. Is it possible to attend 6 baseball games and 4 soccer games?

