



Carlos and Carlita have found a cat food that seems to appeal to even the most finicky of cats, *Figaro Flakes*. They want to mix it with less expensive cat food, *Tabitha Tidbits*, to make an affordable, but tasty cat food.

$$x = TT$$

$$y = FF$$

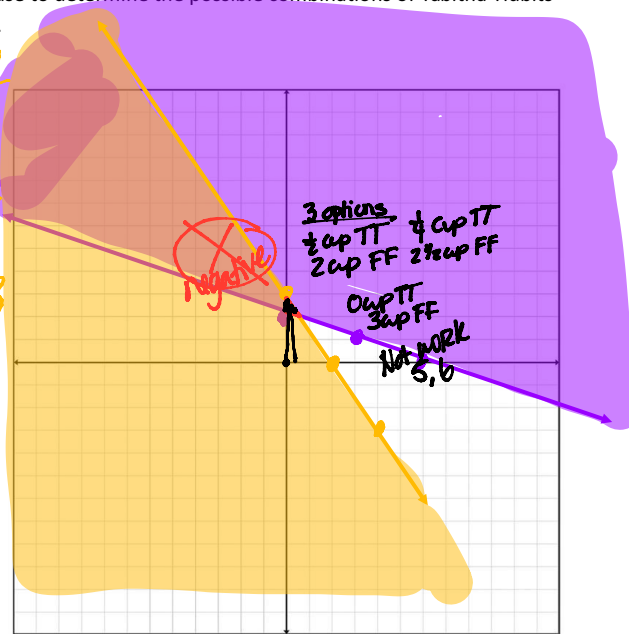
Tabitha Tidbits contains 4 grams of protein and 6 grams of fat per scoop. Figaro Flakes contains 12 grams of protein and 4 grams of fat per scoop. Carlos wants to make a meal for cats that contain at least 24 grams of protein and no more than 12 grams of fat per scoop.

$$4x + 12y \geq 24$$

$$6x + 4y \leq 12$$

6. Write and solve a system of inequalities that Carlos can use to determine the possible combinations of Tabitha Tidbits and Figaro Flakes that will satisfy both of these constraints.

$$\begin{array}{l}
 4x + 12y \geq 24 \\
 -4x \qquad -4x \\
 \hline
 12y \geq -4x + 24 \\
 \frac{12y}{12} \geq \frac{-4x + 24}{12} \\
 y \geq -\frac{1}{3}x + 2
 \end{array}
 \qquad
 \begin{array}{l}
 6x + 4y \leq 12 \\
 -6x \qquad -6x \\
 \hline
 4y \leq -6x + 12 \\
 \frac{4y}{4} \leq \frac{-6x + 12}{4} \\
 y \leq -\frac{3}{2}x + 3
 \end{array}$$



7. Based on your work, suggest at least 3 different “recipes” using each type of cat food that meets Carlos’ nutritional goals. For example, would 1 scoop of Tabitha Tidbits and 1/2 scoop of Figaro Flakes be an acceptable meal?