

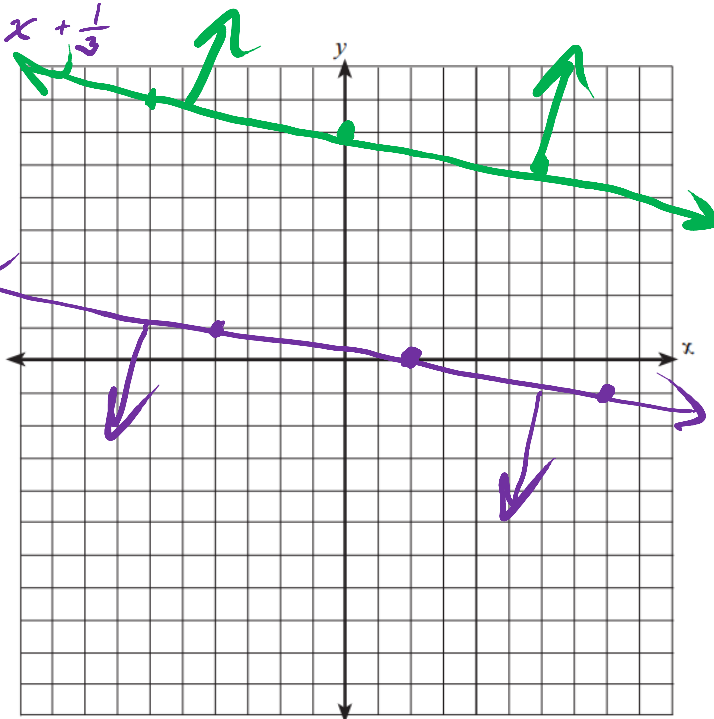
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Warm Up

Graph the following System of Inequalities and name one solution.

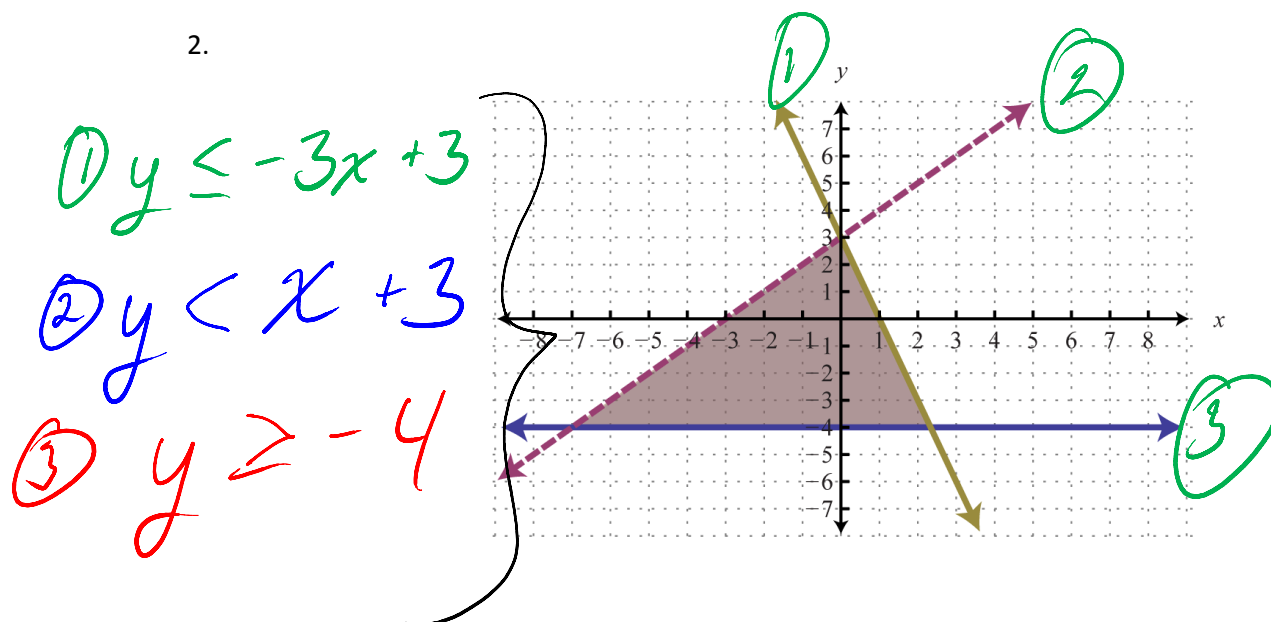
1. $\begin{cases} x + 6y \leq 2 \\ y \geq -\frac{1}{6}x + 7 \end{cases} \rightarrow y \leq -\frac{1}{6}x + \frac{1}{3}$

No Solutions



Write a System of Inequalities for the following Graph.

2.

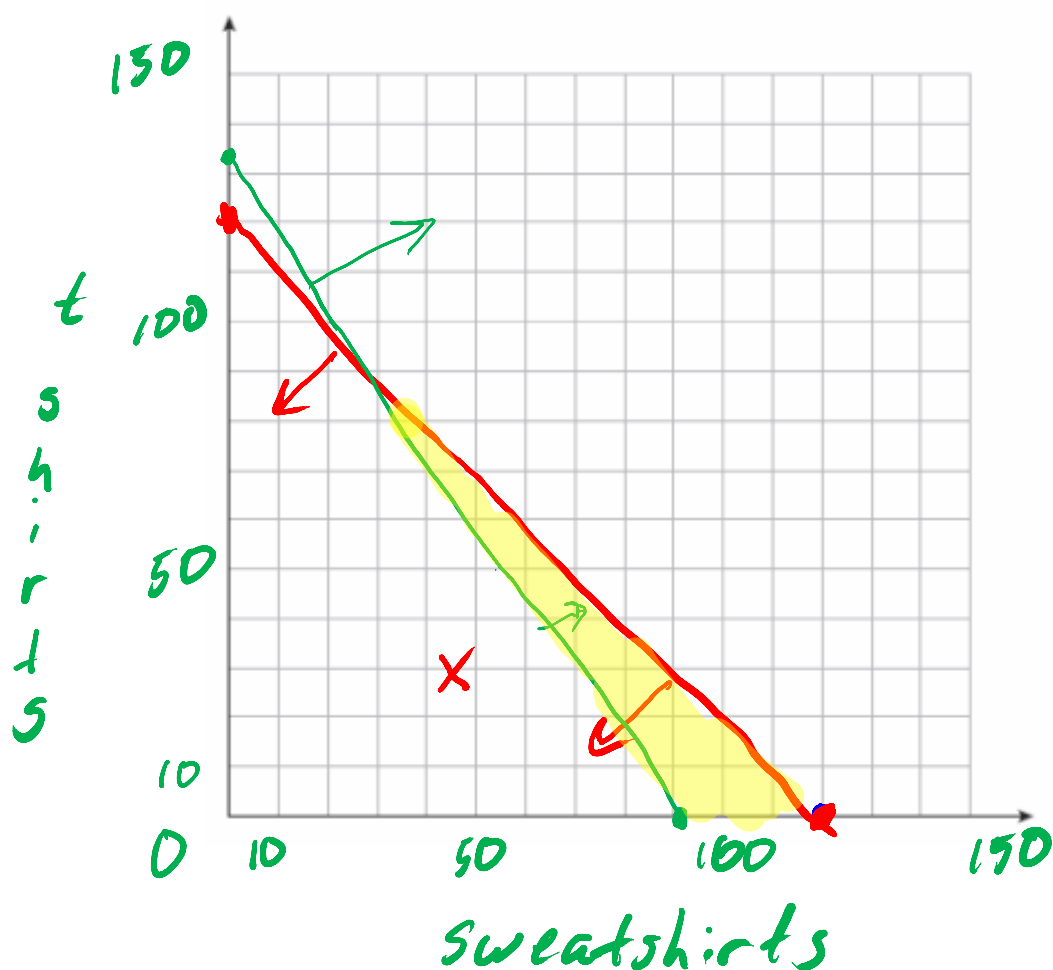


System of Inequalities Applications

1. The Club is selling shirts. They only have enough supplies to print 120 shirts. They will sell sweatshirts for \$22 and T-shirts for \$15. Their goal is at least \$2000 in sales.
 - a. Define the variables, and write a system of inequalities to represent this situation
 - b. Graph the system
 - c. Name one possible solution.
 - d. Is (45, 30) a solution? **NO**

Let $x = \#$ of sweatshirts
 $y = \#$ of T-shirts

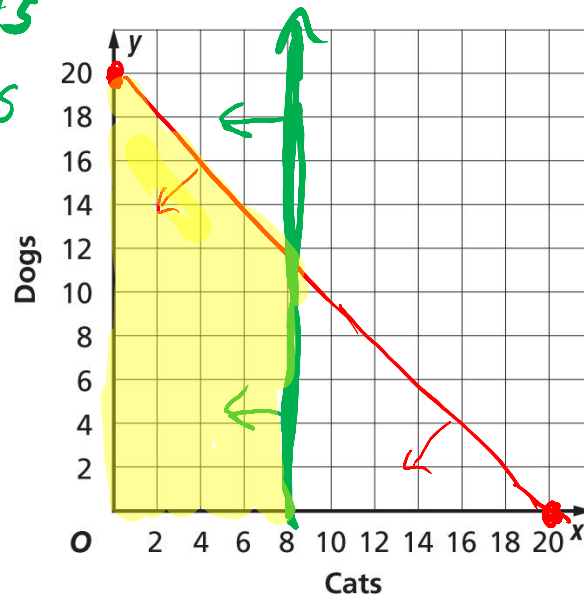
$$\begin{aligned}x + y &\leq 120 \\ 22x + 15y &\geq 2000\end{aligned}$$



2. Renée's Pet Store never has more than a combined total of 20 cats and dogs and never more than 8 cats. Represent this with a system of inequalities.

Let $x = \# \text{ of cats}$
 $y = \# \text{ of dogs}$

$$\begin{aligned} x + y &\leq 20 \\ x &\leq 8 \end{aligned}$$



3. The Camp Courage Club plans to sell tins of popcorn and peanuts as a fundraiser. The Club members have \$900 to spend on products to sell and want to order up to 200 tins in all. They also want to order at least as many tins of popcorn as tins of peanuts. Each tin of popcorn costs \$3 and each tin of peanuts costs \$4. Write a system of equations to represent the conditions of this problem.

Let $x = \text{popcorn}$
 $y = \text{peanuts}$

$$\begin{cases} \$3x + \$4y \leq \$900 \\ x + y \leq 200 \\ x \geq y \end{cases}$$

$\downarrow$
 $y \leq x$

