

MATH



Systems of Linear Inequalities

1. For each of the systems below, determine if they are a system of linear inequalities or not.

A.

$$\begin{cases} x < y^2 - 3 \\ y^2 \geq \frac{x^2}{2} - 12 \end{cases}$$

Is this a system of linear inequalities?

B.

$$\begin{cases} 2x + 7t < x + 1 \\ 5t - 9y \leq 8 \end{cases}$$

Is this a system of linear inequalities?

C.

$$\begin{cases} 9y = 3x + 27 \\ 12y - 5x < 1 \end{cases}$$

Is this a system of linear inequalities?

D.

$$\begin{cases} y > -352 \\ 3 \leq 2x - 6y \end{cases}$$

Is this a system of linear inequalities?

E.

$$\begin{cases} 67x - 93y \leq 39x + 27 \\ 4y - 17x > 2y - 6 \end{cases}$$

Is this a system of linear inequalities?

F.

$$\begin{cases} \frac{y}{3} > x + 4 \\ \frac{4x}{35} \leq \frac{2x}{5} - \frac{3y}{7} \end{cases}$$

Is this a system of linear inequalities?

2. For each of the descriptions below, create a system of linear inequalities.

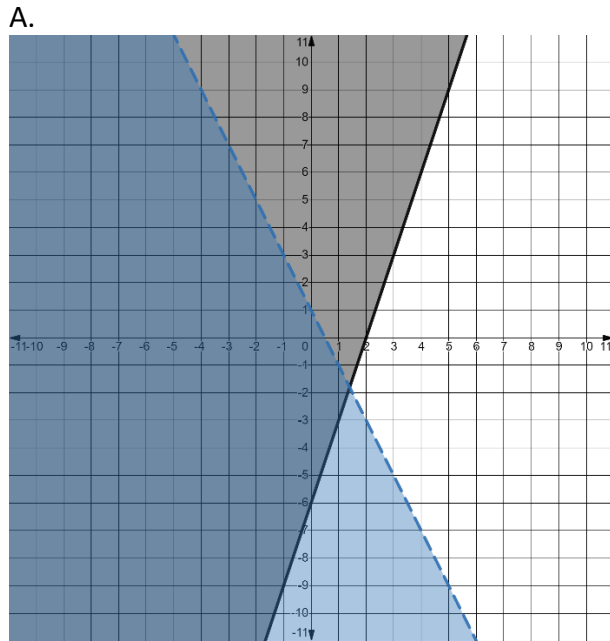
Part A: Suppose you are running in a marathon for charity, looking to raise at least \$1500. People may sponsor you by donating either \$15 or \$25 for every mile you run. However, you cannot have more than 100 people sponsoring you for this marathon.

Now, create a system of inequalities using the above information (use x and y as the variables).

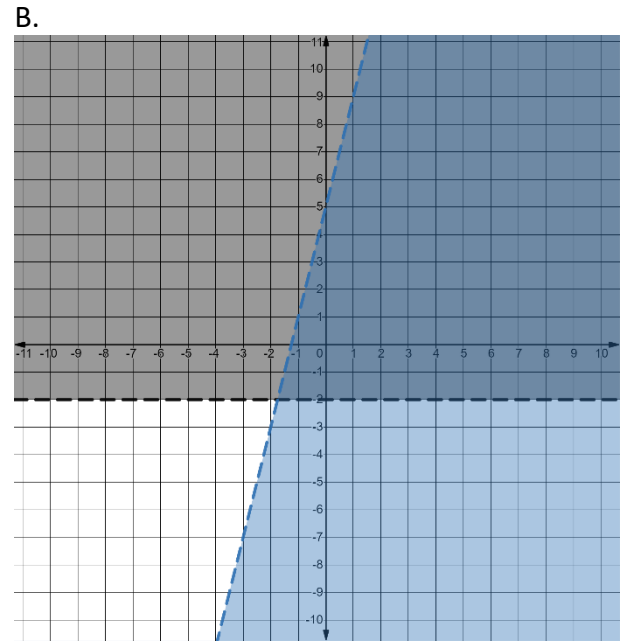
Part B: Your cell phone and tablet use the same account. The cell phone costs \$0.10 for each minute of use and the tablet costs \$0.15 for every minute of use. Each month, you want to only spend up to \$450 and use less than 5,000 minutes on both of the devices.

Now, create a system of inequalities using the above information (use x and y as the variables).

3. Write the system of inequalities that is represented in each of the graphs below.

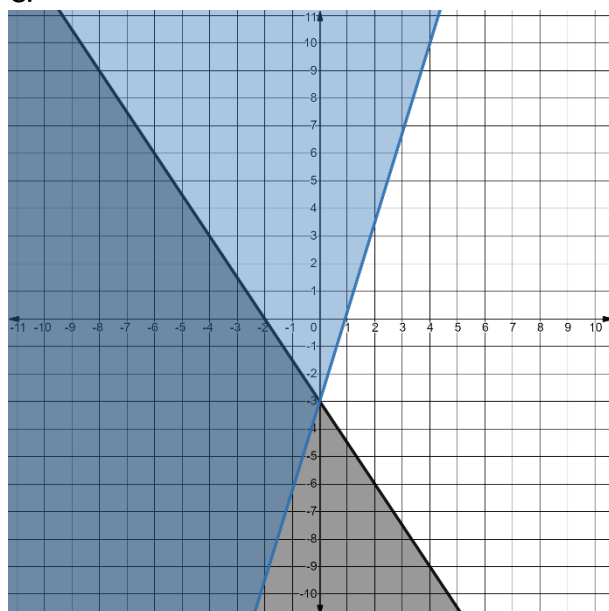


System of Inequalities:



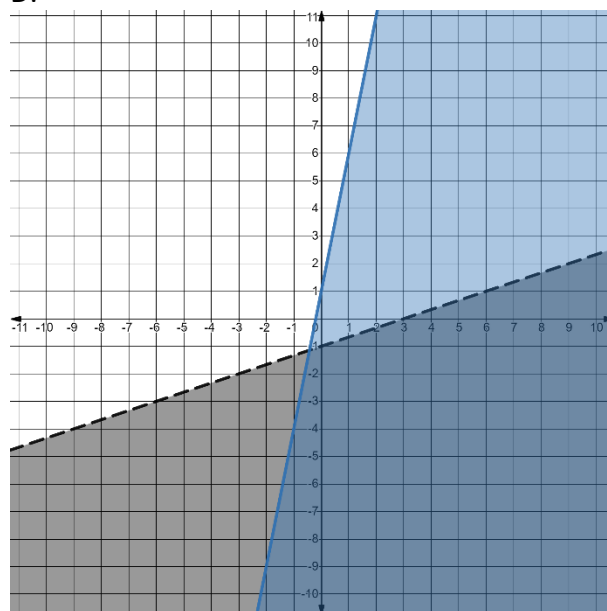
System of Inequalities:

C.



System of Inequalities:

D.



System of Inequalities: