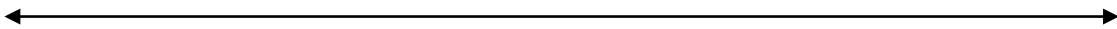
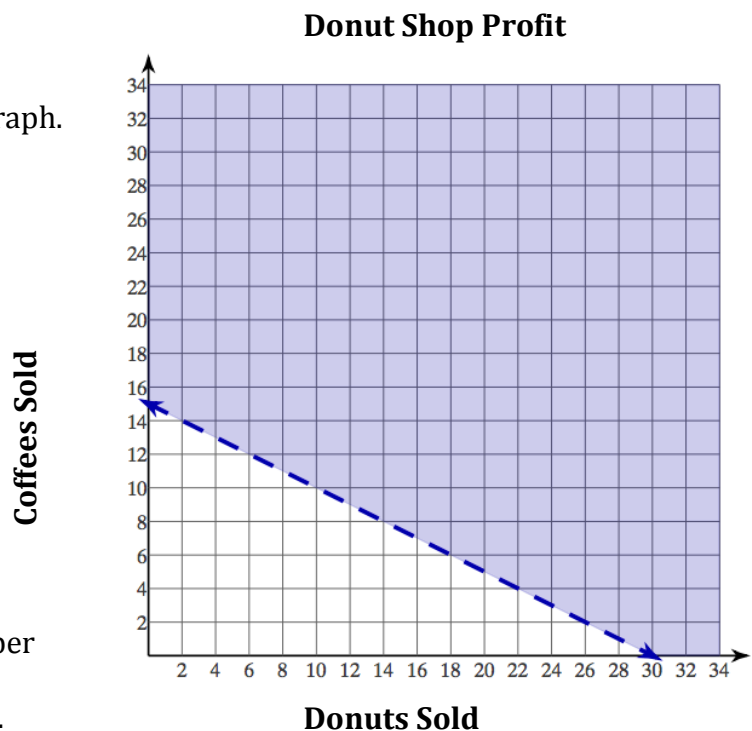


Modeling and Functions with Inequalities

- Christa makes \$7 for every dog she walks. She wants to buy an iPhone 6 for \$300. Christa won a \$50 Apple Store gift card from an essay writing competition. What is the minimum number of dogs she needs to walk to have enough money to buy the iPhone?
 - Define a variable that represents this situation: _____
 - Use your variable to write an inequality for the situation: _____
 - Solve the inequality.
 - Answer the question in a full sentence.
- Students are to present a persuasive speech in English class. The guidelines state that the speech must be at least 7 minutes but not exceed 12 minutes.
 - Write a compound inequality that represents the length of the speech. Be sure to define a variable.
 - Graph your compound inequality on the number line below:



- Examine the 2-variable inequality modeled on the graph.
 - Describe what the graph means in 2-3 sentences.
 - If the donut shop sells 18 donuts, how many coffees do they need to sell to make a profit?
 - Give an example of a number of coffees and donuts that WOULDN'T result in a profit.



Answer Key

1.
 - a. d = dogs she has to walk.
 - b. $7d + 50 \geq 300$
 - c. $d \geq 35.71$
 - d. She must walk at least 36 dogs.

2.
 - a. m = minutes of speech
 $7 \leq m \leq 12$

3.
 - a. The graph shows the amount of coffee and donuts the shop needs to sell to make a profit. Any combination of coffee and donuts that falls along the dotted line would not make the shop a profit.

 - b. They need to sell more than 6 coffees.

 - c. They would not earn a profit if they sold 6 coffees and 8 donuts.