

# Assignment

## Write

Describe how to solve an inequality in your own words.

## Remember

The methods for solving linear inequalities are similar to the methods for solving linear equations. Be sure to reverse the direction of the inequality symbol when multiplying or dividing both sides by a negative number.

## Practice

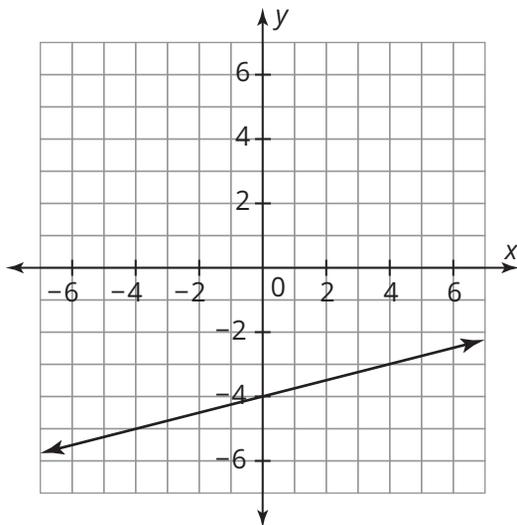
- Chang-Ho is going on a trip to visit some friends from summer camp. He will use \$40 for food and entertainment. He will also need money to cover the cost of gas. The price of gas at the time of his trip is \$3.25 per gallon.
  - Write a function to represent the total cost of the trip as a function of the number of gallons used.
  - Identify the independent and dependent quantities and their units.
  - Identify the rate of change and the  $y$ -intercept. Explain their meanings in terms of the problem situation.
  - Graph the function representing this situation on a coordinate plane.
  - Use the graph to determine how many gallons of gas Chang-Ho can buy if he has \$170 saved for the trip. Draw an oval on the graph to represent the solution. Then write your answer in words and as an inequality.
  - Verify the solution set you interpreted from the graph.
  - Chang-Ho's mom gives him some money for his trip. He now has a total of \$220 saved for the trip. What is the greatest number of gallons of gas he can buy before he runs out of money? Show your work and graph your solution on a number line.
  - If Chang-Ho spent more than \$92 on his trip, how much gas could he have bought? Show your work and graph your solution on a number line.
- Chang-Ho is on his way to visit his friends at camp. Halfway to his destination, he realizes there is a slow leak in one of the tires. He checks the pressure and it is at 26 psi. It appears to be losing 0.1 psi per minute.
  - Write a function to represent the tire's pressure as a function of time in minutes.
  - Chang-Ho knows that if the pressure in a tire goes below 22 psi it may cause a tire blowout. What is the greatest amount of time that he can drive before the tire pressure hits 22 psi? Show your work and graph the solution.
- Solve each inequality for the unknown value.
  - $13 + 4x > 9$
  - $3(4 - 5x) > 8x - 149$
  - $99 - 5d \geq 4d$
  - $3k - 9 \leq -6k - 225$

## Stretch

The Crunch Yum Company orders its nut mixes every month from a distributor. The distributor charges \$4.50 per pound of nut mix. There is a handling fee of \$8.50 for every order. There is free shipping on any order between \$100 and \$400. Write a compound inequality to represent the number of pounds of nuts the company can order and get free shipping. Solve the inequality and graph the solution on one number line.

## Review

1. Calculate the average rate of change for the linear function using the rate of change formula. Show your work.
2. Determine whether the table of values represents a linear function. If so, write the function.



$x$	$y$
-2	$4\frac{1}{2}$
0	$3\frac{1}{2}$
3	2
6	$\frac{1}{2}$

3. The formula for the area of a trapezoid is  $A = \frac{1}{2}h(b_1 + b_2)$ , where  $h$  is its height and  $b_1$  and  $b_2$  are the lengths of each base.
  - a. Determine the area of a trapezoid if its height is 10 cm and the lengths of its bases are 22 cm and 18 cm.
  - b. Rewrite the equation to solve for  $b_1$ .
  - c. Determine the length of the other base of a trapezoid if one base measures 10 m, the height is 20 m, and the area of the trapezoid is 600 square meters.
4. The formula for the area of a triangle is  $A = \frac{1}{2}bh$ . Convert the equation to solve for  $b$ .