

LESSON **2.3** Assignment

Name _____ Date _____

Scouting for Prizes!
Modeling Linear Inequalities

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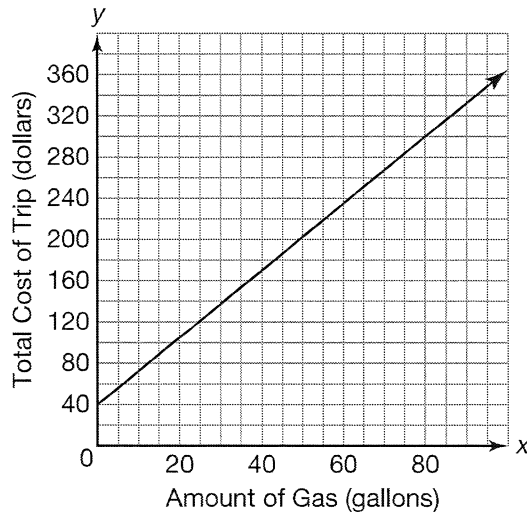
Chang-Ho is going on a trip to visit some friends from summer camp. He will use \$40 for food and entertainment. He will also need money to cover the cost of gas. The price of gas at the time of his trip is \$3.25 per gallon.

1. Consider a function in the form $C(g)$ to represent this problem situation.
 - a. Write a function to represent the total cost of the trip as a function of the number of gallons used.

 - b. Identify the independent and dependent quantities and their units.

 - c. Identify the rate of change and the y -intercept. Explain their meanings in terms of the problem situation.

 - d. Graph the function representing this situation on the coordinate plane.

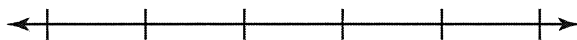


- e. Use the graph to determine how many gallons of gas Chang-Ho can buy if he has \$170 saved for the trip. Draw an oval on the graph to represent the solution. Then write your answer in words and as an inequality.

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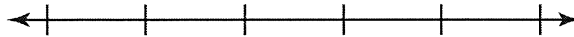
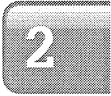
- f. Verify the solution set you interpreted from the graph.

- g. 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 the number line.



Name _____ Date _____

- h.** 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 the 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.

2. Write a function, $p(t)$, to show the tire's pressure as a function of time in minutes.

3. Chang-Ho knows that if the pressure in the 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.

