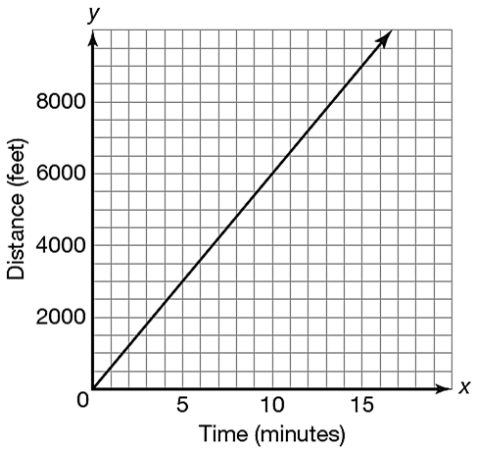
Name: _____

2.3.D3 – Linear Inequalities

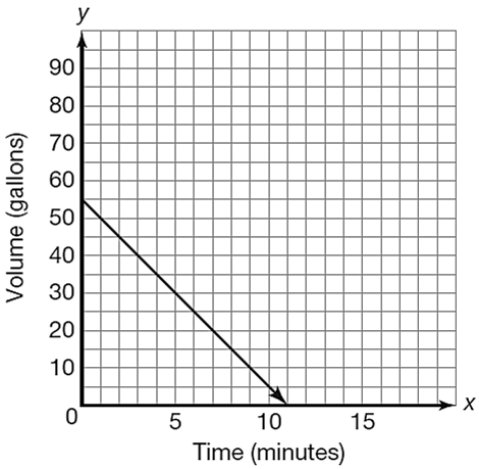
Past due on: _____ Period: _____

Draw an oval on the graph to represent the solution to the inequality. Write the corresponding inequality statement. *Refer to the 2.3 example "Representing Inequalities on a Coordinate Plane" in the Chapter 2 Summary.*

1. Franco is riding his bike to school at a rate of 600 feet per minute. His school is 9000 feet from his home. The function $f(x) = 600x$ represents the distance Franco rides. How many minutes have passed if Franco has less than 3000 feet left to ride?



2. A bathtub filled with 55 gallons of water is drained. The water drains at a rate of 5 gallons per minute. The function $f(x) = -5x + 55$ represents the volume of water in the tub as its drains. How many minutes have passed if the tub still has more than 20 gallons of water remaining in it?



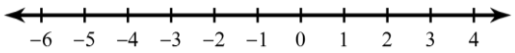
Write and solve an inequality to answer the question. *Refer to the 2.3 example "Writing & Solving Inequalities" in the Chapter 2 Summary.*

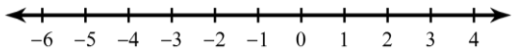
3. Leon plays on the varsity basketball team. So far this season he has scored a total of 52 points. He scores an average of 13 points per game. The function $f(x) = 13x + 52$ represents the total number of points Leon will score this season. How many more games must Leon play in order to score more than 143 points?

Solve each inequality and graph the solution set. *Refer to the 2.3 example "Solving an Inequality with a Negative Rate of Change" in the Chapter 2 Summary.*

4. $-6(p + 2) < -30$

5. $-4(8x - 6) + 5x \geq 159$





Chang 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 a gallon.

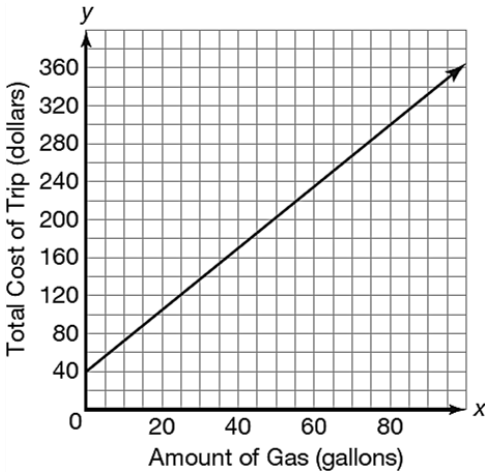
6. Consider a function in the form $C(g)$ to represent this problem situation. Write a function to represent the total cost of the trip, $C(g)$, as a function of the number of gallons used, g.

7. Identify the independent and dependent quantities and their units.

8. Identify the rate of change and explain its contextual meaning.

9. Identify the y-intercept and explain its contextual meaning.

10. How many gallons of gas can Chang buy if he has \$170 saved for the trip? Draw an oval on the graph to represent the solution to the inequality. Write the corresponding inequality statement.



Chang is on his way to visit his friends at camp. Halfway to his destination, he realizes there is a slow leak in ones of the tires. He checks the pressure and it is at 26 psi. It appears to be losing 0.1 psi per minute.

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

12. Chang 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?

    Write an inequality that represents the situation and solve algebraically. (Show all work.) Write the corresponding inequality statement; include units. Graph the solution.