Student _____ Class _____ Date _____

Lesson 17: Solve Problems with Inequalities

NYS Learning Standards:

7.EE.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

> **b.** Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example, As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.

Learning Outcome:

- Write and solve real-life inequalities that lead to the form $px + q < r$ or $px + q > r$, where p, q, and r are integers, fractions, or decimals.
- Graph and interpret the solution set of an inequality.

Mr. Thomas brings $100 to a fundraiser. He wants to leave the event with **at least $50** in his pocket. Guests at the fundraiser buy raffle tickets for several different prizes. **Each raffle ticket costs $2.50**. How many raffle tickets can Mr. Thomas buy and still leave with at least $50 in his pocket?

$$100 - 2.50t \geq 50$$

Chang has **at most $60** to spend on socks and sneakers. He finds a pair of sneakers that he likes for $36. If socks are $3 **per pair,** how many pairs of socks could Chang buy?

$$36 + 3s \leq 60$$

Solve the inequality and graph the solution set on a number line.

$$200 - 4.5x \leq 20$$