Student _____ Class _____ Date _____

Lesson 16: Solve Problems with Equations

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.

> **a.** Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

Learning Outcome:

- Solve problems involving rational numbers.
- Convert among fractions, decimals, and percents as needed to solve the problem.
- Estimate the reasonableness of answers.
- Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are integers, fractions, or decimals.
- Solve using estimates for the fractions and decimals first in order to get an estimated solution.

Marvin made some candles that **each** weighed ¾ pound. He shipped them in a box that weighed 3 pounds. The **total weight** of the box filled with candles **was 12 pounds**. How many candles did Marvin ship in the box? $\frac{3}{4}c + 3 = 12$
Lydia is saving money for her vacation. So far she has $82.50. **Each week** she sets aside 25% of her paycheck for the vacation. After 8 weeks, Lydia **has $338.50** saved for vacation. What is the amount of Lydia's weekly paycheck? $82.50 + (8)(0.25x) = 338.50$
Josh walked a **total of 5 miles** today. First he walked 1 mile **from his house to the park**. Then he walked laps around the ¾-mile loop trail at the park. Finally, **he walked back home**. How many laps did Josh walk around the trail? $\frac{3}{4}x + 2 = 5$