Name: Answer Key Period: _____

Unit 1 Day 9 Notes: Writing Equations with 2 or more Variables

A-CED.2: *I can set up an equation to solve a real-world problem with two unknown variables.*

Real World Problems

1. At its peak after a large storm, the level of a river is 21 ft. The level subsides (goes down) 1.5 ft every day after that. How long will the river level, *L*, subside after *d* days?

Equation: $L = 21 - 1.5d$

2. Joel enjoys going to the movies. The movie theater has a new promotion called the Movie Mania Club. If Joel pays a one-time membership fee of $50 to join the club, he can go to one movie for $5 each Saturday. With a club membership, how much will it cost, *C*, altogether to go to *m* movies?

Equation: $C = 50 + 5m$

3. Roxanne has $50 in her savings account at the beginning of the year. Each month she saves $30. How much money will Roxanne have saved total, *T*, after *m* months?

Equation: $T = 50 + 30m$

4. Jim lives in a state in which speeders are fined $25 for a speeding ticket plus $10 for each mile per hour over the speed limit. How much will Jim's ticket, *T*, be after exceeding the speed limit for *m* miles?

Equation: $T = 25 + 10m$

Write an equation to model each situation and solve.

5. A mechanic charges $40.00 per hour (*h*) for labor. He also charges an additional $75.00 to run a diagnostic test on your car. Write a formula to calculate the total cost (*C*) for repairs.

a) Equation: $c = 40h + 75$

b) How much did it cost if the mechanic worked for 3 hours with your car?

$h = 3$

$C = 40(3) + 75$

$C = 120 + 75$

$C = \$195$