A. Bay
Algebra 1

Name: Key
Date: _____

Solving Simple Equations
1.1b

Four-Step Approach to Problem Solving:

1. **Understand the Problem**: What are the unknowns? What information is being given? What is being asked?

2. **Make a Plan**: This plan might involve one or more problem-solving strategies.

Common Problem-Solving Strategies	
Use a verbal model.	Guess, check and revise.
Draw a diagram.	Sketch a graph or number line.
Write an equation.	Make a table.
Look for a pattern.	Make a list.
Work backward.	Break the problem into parts.

3. **Solve the Problem**: Carry out your plan. Check that each step is correct.

4. **Look Back**: Examine your solution. Check that your solution makes sense in the original statement of the problem.

Some verbal expressions that suggest an equal sign are:

- Is
- Equals
- Is equal to
- Is the same as
- Is as much as
- Is identical to

Some verbal expressions that suggest addition are:

- More than
- The sum of
- The total of
- Increased by

Some verbal expressions that suggest subtraction are:

- Less than
- The difference between
- Decreased by
- Fewer

Some verbal expressions that suggest multiplication are:

- Times
- The product of
- Of
- Twice

Some verbal expressions that suggest division are:

- The quotient of
- Divided by
- Halved

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Example 1: In the 2012 Olympics, Usain Bolt won the 200-meter dash (distance) with a time of 19.32 seconds (time). Write and solve an equation to find his average speed (rate) to the nearest hundredth of a meter per second.

* distance formula

$d = rt$

distance = rate · time

$d = rt$

$\frac{200}{19.32} = \frac{R \cdot 19.32}{19.32}$

$10.35 = R$

Usain Bolt ran 10.35 meters per second.

Example 2: On January 22, 1943, the temperature in Spearfish, South Dakota fell from 54°F (start) at 9:00am to −4°F (end) at 9:27am. How many degrees did the temperature fall? (x) ← subtraction

$54 - x = -4$

$-54 \quad -54$

$-x = -58$

$\frac{-x}{-1} = \frac{-58}{-1}$

$x = 58$

The temperature fell 58°

Example 3: The balance of an investment account is $308 more than (addition) the balance 4 years ago. The current balance of the account is $4708. What was the balance 4 years ago? (x)

$x + 308 = 4708$

$-308 \quad -308$

$x = 4400$

The balance was $4400 four years ago.

Homework: