Lesson 8
Problem Solving

NAME:

Start by navigating to the Online Lesson for instructions.

Objectives

- ✓ Plan and persevere in math
- ✓ Correct mistakes
- ✓ Create a problem-solving plan for equations

Why?

Problem solving is a critical life skill. We can break down problems into smaller steps. Mistakes can and will happen, and it is important to persevere and learn from them to accomplish new tasks. Problem solving makes you more effective, efficient and adaptable.

Explore

Problem Solving

▷ *Fill in the notes as you watch the video in the Online Lesson.*

- _____ in math is more than just finding an answer.

- Problem solving is a _____ that includes _____ _____, among other things, to help make the math make sense to you.

- The greatest mathematicians:

    - _____.

    - _____ for counter-examples to disprove themselves.

    - _____ others to find errors in their work.

    - go back and _____ it or _____.

- Important aspects of problem solving:

    - You _____.

    - You appropriately use _____ to assist you.

- You look for _____ ways to solve problems.

- You embrace _____ and then _____ them.

- You _____ to solve complex problems.

■ Problem-solving plan for equations:

1) At every instance, ask yourself, "What is happening to the _____?" and _____ each response to that question.

2) After your list is complete, _____ an arrow going from the bottom of your list to the top.

3) For each item in your list, ask yourself, "What operation will _____ (be the inverse) it?" and list the inverse operation.

■ No matter the context, the _____ of mathematics, including order of operations and inverse operations, stay _____.

Example 1

⊳ *Complete the example as you watch the video in the Online Lesson.*

Write a plan to isolate x. Then name the inverse of each step.

$$\frac{85}{76}x - 243 = 901$$

▶ Find x and circle it

$$\cdot \frac{85}{76} \uparrow$$
$$-243 \uparrow$$

▶ What is happening to x?

x is multiplied by $\dfrac{85}{76}$

243 is subtracted from the x-term

▶ What operation will "undo" what you wrote down?

Example 2

▷ *Complete the example as you watch the video in the Online Lesson.*

Write the plan to isolate x.

$$\frac{x}{AB} + E = CD$$

▶ Find x and circle it

$$\div AB \uparrow$$
$$+ E \uparrow$$

▶ What is happening to x?
x is divided by AB
E is added to the x-term

▶ What operation will "undo" what you wrote down?

Example 3

▷ *Complete the example as you watch the video in the Online Lesson.*

Write the plan to isolate x.

$$-3 - \frac{4}{7}x + P = 6$$

✎ Practice

Write a plan to isolate x. Then write the inverse of each step.

1) $\dfrac{x}{7} - 11 = -1$

2) $4x + \dfrac{1}{4} = 7$

3) $5x + 8 = 45$

4) $Ax + P = G$

5) $-\dfrac{2}{3}x + \dfrac{4}{3} = -3$

6) $2 = 9x + \dfrac{4}{5}$

Write a plan to isolate x. Then write the inverse of each step.

7) $\dfrac{x}{6} + 3 = 11$

8) $\dfrac{x}{C} - B = Q$

9) $5 - 1x = -10$

10) $\dfrac{7}{4} - \dfrac{5}{6}x = 8$

11) $\dfrac{x + 8}{9} = 3$

12) $\dfrac{x - D}{5} = Q$

To continue, return to the Online Lesson.