Problem Solving

Fill in the guided notes as you watch the video in the Digital Toolbox.

- _____ 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.

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- 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 Digital Toolbox.

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

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

$\cdot \frac{85}{76}$ ↑

-243 ↑

Find x and circle it

What is happening to x?

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

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 Digital Toolbox.

Write the plan to isolate x.

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

$\div AB$ ↑

$+E$ ↑

Find x and circle it

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 Digital Toolbox.

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

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

3) $5x + 8 = 45$

4) $Ax + P = G$

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

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

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

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

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

9) $5 - 1x = -10$

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

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

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