

Solving One-Step Equations

Name: _____ Date: _____

LEARNING OBJECTIVE

The student will solve one-step equations using inverse operations and verify solutions using a balance model.

MATERIALS NEEDED

- A simple balance scale (or a coat hanger with 2 paper cups taped to string as a homemade balance)
- 20 small identical objects (coins, washers, or beans)
- Notebook paper
- Pencil

HANDS-ON ACTIVITY

1. Build or set up your balance scale so both sides are level and empty.
2. Model the equation $x + 3 = 8$ by placing 3 objects plus an unknown group (a small cup representing x) on one side, and 8 objects on the other side.
3. Remove 3 objects from BOTH sides at the same time to keep the scale balanced, and count how many objects are left in the ' x ' cup to find the solution.
4. Record the equation, the steps you took, and the solution on notebook paper.
5. Repeat the process for two more one-step equations of your choice (one using multiplication, such as $4x = 12$, modeled by dividing your objects into 4 equal groups).

QUESTIONS

1. Solve $x + 3 = 8$ and explain the inverse operation you used.

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2. Solve $4x = 12$ and explain the inverse operation you used.

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3. Why did you have to remove objects from both sides of the balance at the same time?
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4. Check your solution to $x + 3 = 8$ by substituting your answer back into the original equation.
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