Solving One-Step Equations

Objectives:

…to solve one-step equations involving whole numbers

Assessment Anchor:

7.D.2.1 – Select and/or use appropriate strategies to solve or represent number sentences.

Vocabulary alert!!

EQUATION – a mathematical sentence that uses an equals (=) sign to indicate that the side to the left of the equals sign has the same value as the side to the right of the equals sign
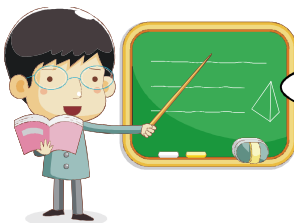
INVERSE OPERATIONS – operations that undo each other

NOTES

***EQUATIONS ARE LIKE BALANCED SEE-SAWS…AND MUST REMAIN BALANCED!!

To solve a one-step equation:

1. **Locate the variable in the equation**
2. **Use the inverse (opposite) operation on both sides of the equation**
3. **Show your answer**

"For every equation from this day forward, I agree to write down what I'm doing to both sides!"

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EXAMPLES

1) $\quad$ $x - 7 = 15$ $\qquad$ ……original problem

$\qquad$ $\text{\textcircled{x}} - 7 = 15$ $\qquad$ ……locate the variable term
$\qquad$ $\underline{+ 7 \quad + 7}$ $\qquad$ ……add 7 to both sides

$\qquad$ $\boxed{x = 22}$ $\qquad$ ……show final answer!

2) $\quad$ $x + 10 = 57$ $\qquad$ ……original problem

$\qquad$ $\text{\textcircled{x}} + 10 = 57$ $\qquad$ ……locate the variable term
$\qquad$ $\underline{- 10 \quad - 10}$ $\qquad$ ……subtract 10 from both sides

$\qquad$ $\boxed{x = 47}$ $\qquad$ ……show final answer!

3) $\quad$ $8y = 72$ $\qquad$ ……original problem

$\qquad$ $\dfrac{8y}{8} = \dfrac{72}{8}$ $\qquad$ ……locate the variable term
$\qquad$ $\qquad\qquad$ ……divide by 8 on both sides

$\qquad$ $\boxed{y = 9}$ $\qquad$ ……show final answer!

4) $\quad$ $13 = \dfrac{k}{4}$ $\qquad$ ……original problem

$\qquad$ $4 \times 13 = \dfrac{k}{4} \times 4$ $\qquad$ ……locate the variable term, and then
$\qquad$ $\qquad\qquad$ multiply both sides by 4

$\qquad$ $\boxed{52 = k}$ $\qquad$ ……show final answer!

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5) $x + 13 = 19$

9) $46 = y - 20$
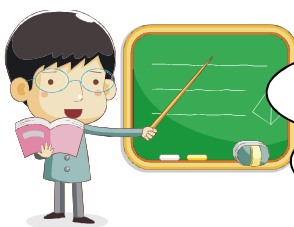
6) $x - 10 = 22$

10) $41 = k + 18$

7) $\dfrac{w}{7} = 14$

11) $3k = 126$

8) $135 = 5m$

12) $22 = \dfrac{f}{6}$

"Knowing to use inverse operations, and to write it down on both sides…that's our main goal here. It's just as important as calculating the right answer… maybe even MORE important."