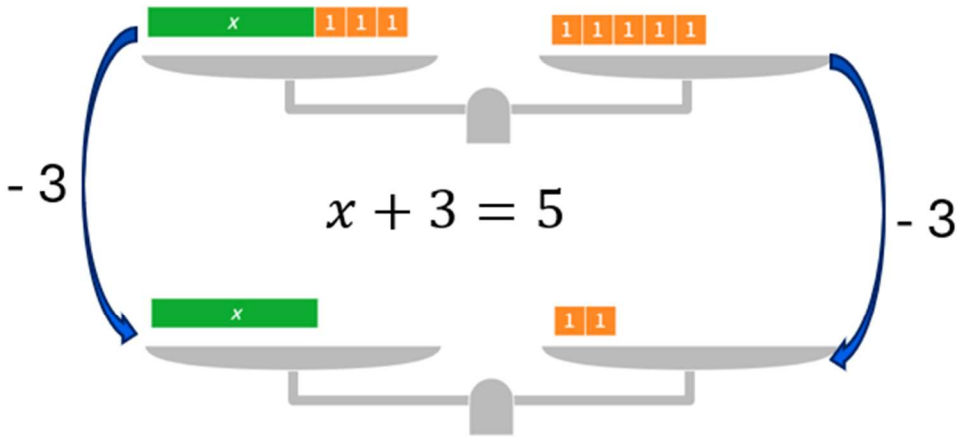
Solving One-Step Equations On a Balance Scale

Solving an equation means finding the value of the unknown variable (e.g., x). One way to understand solving equations is by using a balance scale approach. (Images were created using free virtual manipulatives available at Polypad.com.)

To solve a one-step equation on a balance scale:

1. Model the equation on a balance scale.
2. Use the inverse operation to isolate x on one side of the scale. Keep the scale balanced by doing the same operation on both sides.
3. Check your answer by substituting the value of x back into the original equation. If both sides are equal, it's correct.
4. State your final answer.

Example: $x + 3 = 5$



$x = 2$

$2 + 3 = 5$✓

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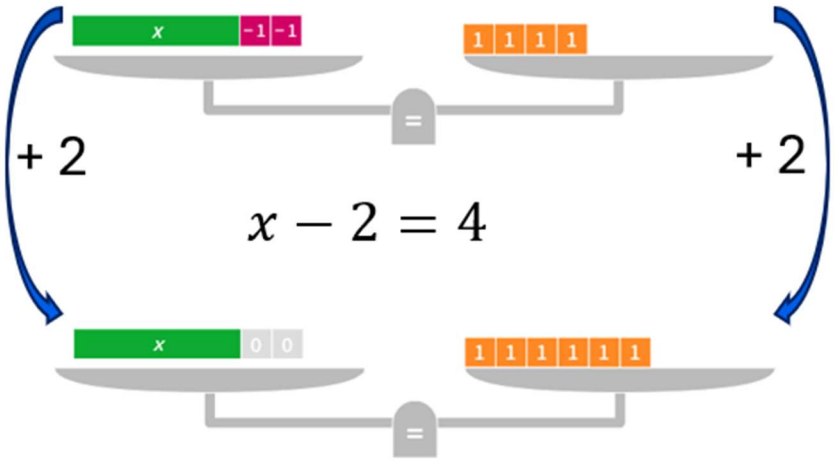
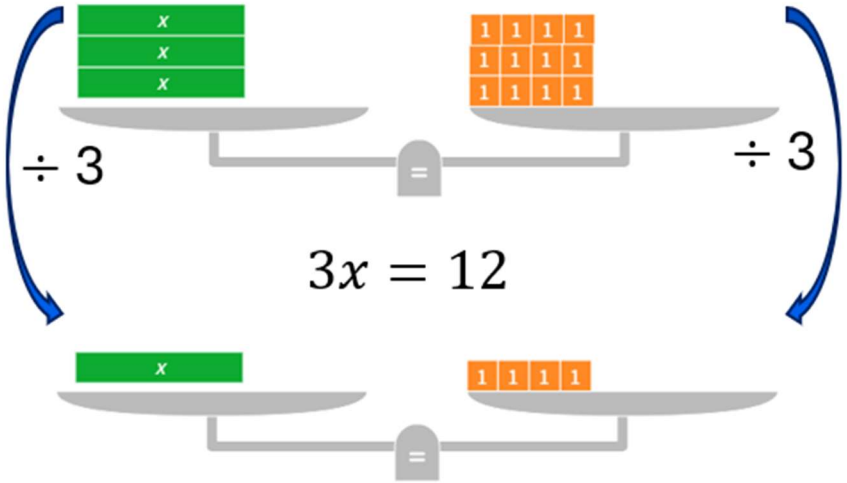
Example: x - 2 = 4



$x - 2 = 4$

$x = 6$

Example: $3x$ = 12



$3x = 12$

$x = 4$

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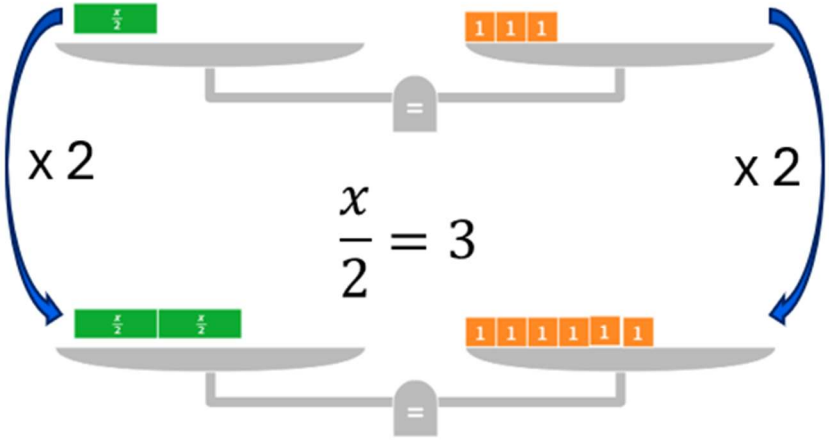
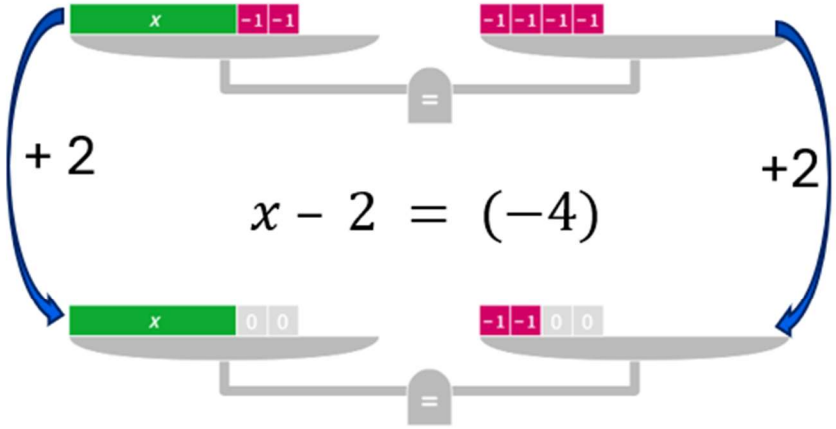
Example: $\frac{x}{2} = 3$



$x = 6$

Example: $x - 2 = (-4)$



$x = (-2)$

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