Inverse operations

Inverse operations are operations that are opposite or "undo" each other. For example, addition undoes subtraction, and division undoes multiplication. Inverse operations are useful when solving equations.

Inverse operation examples:

Addition/Subtraction	$x + 3 - 3 = x$
Multiplication/Division	$x \cdot 3 \div 3 = x$
Exponents/Roots	$\sqrt{x^2} = x$

Example

Use inverse operations to complete the equation.

$$2 + 7 \quad ? \quad = 7$$

In this example, 2 is being added to 7. To undo that operation, we need to subtract 2.

$$2 + 7 - 2 = 7$$

Simplify the left-hand side to show that the equation is true. Following the order of operations, we'll do the addition and subtraction from left to right.

$$2 + 7 - 2$$

$$9 - 2$$

$$7$$

Let's try another example of inverse operations.

Example

Use inverse operations to complete the equation.

$$4 \cdot 3 \quad ? \quad = 4$$

In this example, 4 is being multiplied by 3. To undo that operation, we need to divide by 3.

$$4 \cdot 3 \div 3 = 4$$

Simplify the left-hand side to show that the equation is true. Following the order of operations, we'll do the multiplication and division from left to right.

$$4 \cdot 3 \div 3$$

$$12 \div 3$$

$$4$$