Algebra

$$x + 10 = 16$$

$$x = 6 \quad \text{\small (subtracted 10 from both sides of the equals sign to get x on its own)}$$

You ask: what—plus 10 equals 16? Recall that what you do to one side of the equation, you do to the other. Both sides of the equation are already equal whether or not x is known.

(x + 10) and (16)

Looking at the equation, the issue is that on one side, 16 is whole while on the other side, 16 sits *disassembled* as 6 and 10. The two sides are then modified where both remain equal.

➡ (6) and (6)

You have undone all the steps it takes to assemble 16 using 6, therefore you are left with only 6. And having repeated the same steps on the other side, both sides remain equal, at all times and for every step.

You have determined the value of x and understood its role in the equation. You may adjust the constants to your needs and drop variables in place of something unknown. Just as subtraction opposed addition in this equation, the following are opposite operations performed on both sides of an equation in order to get x on its own—and where reduction is impossible— values are left disassembled with multiple variables.

$$x + 10 \longleftrightarrow x - 10 \qquad\qquad x^2 \longleftrightarrow \sqrt{x}$$

$$10x \longleftrightarrow \frac{x}{10} \qquad\qquad x^3 \longleftrightarrow \sqrt[3]{x}$$

$$x^4 \longleftrightarrow \sqrt[4]{x}$$

$$\cdot$$
$$\cdot$$
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