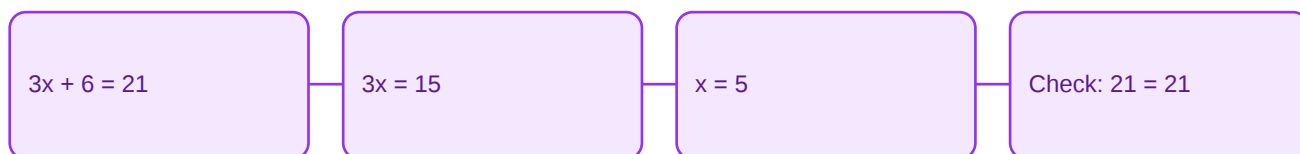


Linear equations and functions

Solve linear equations, interpret slope and intercept, and check the requested quantity.



Reasoning at a glance

1. Equivalent equations

Applying the same valid operation to both sides preserves the solution. For $3x + 6 = 21$, subtract 6 from both sides before dividing by 3.

2. Distribution and signs

$2(x - 4) = 2x - 8$. Multiply each term inside the parentheses. A negative factor changes both signs.

3. Slope and intercept

In $y = mx + b$, m is the change in y per unit increase in x . b is the value of y when $x = 0$.

4. Applications and units

A fixed charge contributes to the intercept. A charge per unit contributes to the slope. State what each variable measures.

5. Solution count

After simplifying, $0 = 0$ means all real values satisfy the equation. A contradiction such as $0 = 5$ means no solution.

A common error

$3(x - 2)$ equals $3x - 6$. Multiplying x alone changes the equation.

Prerequisites: Arithmetic, negative numbers and the distributive property

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