

Defining Variables & Forming Equations



Variables and Equations

Key idea

A **variable** is a letter for an unknown quantity — define it precisely: let h be the number of hire hours.

An **equation** states two expressions are equal, e.g. $3x = 15$.

Example

A number x times 3 gives 15:
 $3x = 15$.

Example

A \$10 fee plus \$5 per hour h , total \$35: $10 + 5h = 35$.

Common mistake

Do not write $x + 4$ for 'four times x '. Do not reverse 'five less than x ': it is $x - 5$, not $5 - x$.



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A Reliable Forming Process

Key idea

1. Define one unknown. **2.** Build an expression for each related quantity. **3.** Use the given total or equality to write the equation.

Related ages

Sarah is x , her brother is $x + 4$, and their ages sum to 30: $x + (x + 4) = 30$.

Equal quantities

Opposite rectangle sides $5x + 3$ and $3x + 9$: no total needed, just $5x + 3 = 3x + 9$.

Common mistake

Forming an equation and solving it are different skills. Stop once the equation is written, unless also asked to solve.