Forming measurement expressions

Measurement: Choose the Rule

Key idea

Perimeter **adds** lengths. Area **multiplies** two lengths (square units). Volume multiplies three dimensions. Don't mix them.

Perimeter example

Length $x + 3$, width x:
$P = 2(x + 3) + 2x = 4x + 6$

Circle example

Circumference $C = 2\pi r$; area $A = \pi r^2$.

Common mistake

Leave π exact unless a decimal is asked for — and check every added term has the same units.

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Forming measurement expressions

Composite Shapes and Checks

Key idea

For composite shapes, **add** or **subtract** regions or edges as the shape requires. Name each variable and keep units consistent.

Subtract a part

Rectangle x by $x + 3$, strip 2 by x removed:

$x(x + 3) - 2x = x(x + 1)$

Annulus

$\pi R^2 - \pi r^2 = \pi(R^2 - r^2)$

Common mistake

A shared internal edge is **not** part of an outer perimeter — only count the outside boundary.

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