Name:......................................

Linear Equations in One Variable

Linear equations in one variable are algebraic equations that involve only one variable, typically denoted as xxx, and have a maximum power of 1. These equations can be written in the standard form:

$$ax+b=0$$

Where:

- a and bbb are constants.
- x is the variable.
- a ≠ 0 (as it ensures the equation is linear).

Steps to Solve Linear Equations in One Variable:

1. Simplify both sides: Expand any brackets and combine like terms.
2. Isolate the variable term: Move all terms containing the variable to one side of the equation and constants to the other side.
3. Solve for the variable: Divide or multiply to isolate x.
4. Verify your solution: Substitute the solution back into the original equation to ensure it satisfies the equation.

Name:..

Linear Equations in One Variable

Practicing the examples given here will help you in understanding Linear Equations in One Variable.

1

Example : $3x+5 = 20$

Subtract 5 from both sides: $3x = 15$

Divide by 3: $x = 5$

2

Example : $2(x-3) = 4$

Expand the brackets: $2x-6 = 4$

Add 6 to both sides: $2x = 10$

Divide by 2: $x = 5$

3

Example : $\dfrac{x}{3} + 2 = 5$

Subtract 2 from both sides: $\dfrac{x}{3} = 3$

Multiply by 3: $x = 9$

SOLVING ONE-STEP EQUATIONS

SOLVE EACH EQUATION FOR THE GIVEN VARIABLE.

$8x = 6x + 10$	$4 = 5x - 6$	$13y = -12y + 100$
$18x = -13x + 62$	$5x - 3 = 12$	$3(x + 1) = 6$
$7(m - 9) = 35$	$8(x + 3) + 2 = 42$	$16 - 3(x - 7) = -14$

One-Step Equations

Solve each equation for the given variable.

$x + 4 = 7$	$x - 6 = 18$	$x + 7 = -12$
$9 + x = -5$	$6 = x - 7$	$-8 = x - 10$
$5x = -25$	$-18 = -3x$	$6 = -4x$
$0.5x = -3$	$7 = 0.25x$	$-10x = 0$