Lesson: Solving Linear Equations

A **linear equation** is an equation that represents a straight line when graphed. It has the general form:

ax+b=cax + b = cax+b=c

where:

- aaa, bbb, and ccc are constants (numbers),
- xxx is the unknown variable.

Example 1: Solving a Simple Equation

Solve:

3x+5=113x + 5 = 113x+5=11

Step 1: Isolate the variable term
Subtract 5 from both sides:

3x=63x = 63x=6

Step 2: Solve for xxx
Divide both sides by 3:

x=2x = 2x=2

Example 2: Solving an Equation with Brackets

Solve:

2(3x−4)=102(3x - 4) = 102(3x−4)=10

Step 1: Expand the brackets
Multiply 2 by each term inside the brackets:

6x−8=106x - 8 = 106x−8=10

Step 2: Move the constant to the other side
Add 8 to both sides:

6x=186x = 186x=18

Step 3: Solve for xxx
Divide both sides by 6:

$x=3x = 3x=3$

Key Tips

1. Always perform the **same operation** on both sides of the equation.
2. Use **inverse operations** to move terms:
    - Add to cancel subtraction.
    - Subtract to cancel addition.
    - Multiply to cancel division.
    - Divide to cancel multiplication.
3. Check your answer by plugging it back into the original equation.