Guide to: Simultaneous equations

maths Links

Explanation:

To solve two linear simultaneous equations by elimination, multiply one or both equations so that one letter has the **same coefficient size** in both equations.

Use the rule **SSS / DAA**: if the signs in front of the matching terms are the **Same, Subtract** the equations; if the signs are **Different, Add** the equations. Once you find the first letter, substitute it back into an original equation to find the second letter.

Example 1: Solve **3x + 2y = 19** and **5x − 2y = 13**.

Solution:

The **2y** terms have **different signs** (+2y and −2y), so **add**:
(3x + 5x) + (2y − 2y) = 19 + 13 → **8x = 32** → **x = 4**
Substitute x = 4 into 3x + 2y = 19:
12 + 2y = 19 → 2y = 7 → **y = 3.5**
Answer: x = 4, y = 3.5

Example 2: Solve **2x + 3y = 18** (1) and **3x + 5y = 29** (2).

Solution:

Multiply (1) by 3 and (2) by 2 to match **6x**:
6x + 9y = 54 and **6x + 10y = 58**
Same signs (+6x), so subtract: **y = 4**
Sub y = 4 into (1): 2x + 12 = 18 → 2x = 6 → **x = 3**
Answer: x = 3, y = 4

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