

Formulae and rearranging

Pearson Edexcel GCSE Mathematics 1MA1 • L021

Foundation and Higher • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose

Substitute into formulae and change the subject by inverse operations. State necessary restrictions and check with values.

Vocabulary

Formula: equation connecting quantities. Subject: isolated variable. Rearrange: express the same relationship with a different subject. Restriction: excluded value such as a zero divisor.

Why the method works

Changing the subject uses the same balanced operations as solving, but retains letters. From $y=3x+4$, subtract 4 to obtain $y-4=3x$, then divide by 3: $x=(y-4)/3$. Brackets show that the whole difference is divided.

Method and checking

Identify the required subject and undo operations in reverse order on both sides. Keep grouped numerators in brackets. Check by substitution into both versions; do not divide by zero.

Common errors and next attempt

If brackets are omitted, compare $(y-4)/3$ with $y-4/3$ at $y=10$. If the same letter is on both sides, use the separate Higher route after common-factor work. Recheck $y=2x+6$ as $x=(y-6)/2$.