

Rearranging when the subject occurs twice

Pearson Edexcel GCSE Mathematics 1MA1 • L021

Higher teaching route • 10-minute alternative • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

Higher route: replace the 2-minute A3 feedback and the two 4-minute Challenge discussions with this 10-minute taught extension. Retain core P1–P2. Set HX1–HX2 as the final four minutes of that alternative, and use the shared challenges later if needed. The core route remains 60 minutes; the extension is not an additional compulsory ten minutes. Route choice reflects tier curriculum, not temporary support needs.

Discover through a worked example

Make x the subject of $y = ax + cx + d$: subtract d , then factorise x to get $y - d = x(a + c)$. Divide by $a + c$: $x = (y - d)/(a + c)$, provided $a + c \neq 0$. If $a + c = 0$ the original reduces to $y = d$: every x works when $y = d$, and none when $y \neq d$. A different example, $p = 3x + qx$, gives $p = x(3 + q)$, so $x = p/(3 + q)$, provided $q \neq -3$.

H1

Make x the subject of $y = 4x + kx$. Complete $y = x(\underline{\hspace{1cm}})$; $x = \underline{\hspace{1cm}}$. State the restriction.

Optional scaffold: Take x outside a common-factor bracket.

H2

Make t the subject of $v = at + bt + 2$. State when the division is valid.

Optional scaffold: Subtract 2 before factorising t .

Apply and prove independently

Four marks. Show working. Your teacher reviews the reasoning; these answers are not automatically marked.

HX1

Make x the subject of $p=5x+rx$. State the restriction. [2]

HX2

A learner rearranges $y=3x+kx$ as $x=y/3+k$. Explain the error and give the correct formula with its restriction. [2]

Next step

Record which step needs practice. Retry a fresh example after a delay. A completed task does not establish mastery.