Guide to:
Rearranging (harder)

maths Links

Explanation:

When the letter you want to make the subject appears **more than once** in a formula, follow this standard 4-step method: (1) multiply out any fractions and expand brackets; (2) move all terms containing the target letter to one side and all other terms to the opposite side; (3) **factorise out the target letter** as a single common factor; (4) divide by the bracket.

If the target letter is trapped inside a square root or power, isolate the root or power term before squaring or taking roots of both sides.

Example 1: Make x the subject of $y = \frac{3x + 2}{x - 4}$

Solution:

Multiply by $(x - 4)$: $y(x - 4) = 3x + 2$
Expand bracket: $xy - 4y = 3x + 2$
Collect x terms on left: $xy - 3x = 4y + 2$
Factorise out x: $\mathbf{x(y - 3) = 4y + 2}$
Answer: $\mathbf{x = \frac{4y + 2}{y - 3}}$

Example 2: Make m the subject of $T = 2\sqrt{(\frac{m + 1}{m - 3})}$

Solution:

Square both sides: $T^2 = 4(\frac{m + 1}{m - 3})$
Multiply & expand: $T^2m - 3T^2 = 4m + 4$
Collect m terms: $m(T^2 - 4) = 3T^2 + 4$
Answer: $\mathbf{m = \frac{3T^2 + 4}{T^2 - 4}}$

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Ken Stafford (Past Paper Qs)	Qs	Ans	**Maths Made Easy**	Qs	Ans
Maths Genie	Qs	Ans	**Metatutor**	Qs	Ans
Corbettmaths (Practice)	Qs	Ans	**Maths Takeaway**	Qs	Ans
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