Lesson 8

8.1 Isolation techniques

Photograph by Simon Wiffen

The GCSE examination often has a *Change of Subject* question in which the variable to be made the subject occurs more than once.

8.2 An Easier Example

Make x the subject; $\qquad 2h + 3x = k^2 - 8x$

8.3 A Harder Example

Showing full working, make x the subject

$$2y = \frac{3 + 7x}{4 + 5x}$$

8.4 Exercise

Question 1
Showing full working, make x the subject
$$7m + 9x = 4x + b$$

Question 2
Showing full working, by first expanding the brackets, make x the subject
$$6(x + 4y) = 5(7c - 3x)$$

Question 3

Showing full working, by first making brackets, make x the subject

$$11x + mx = k^2$$

Question 4

Showing full working, make x the subject

$$\frac{1}{6x - y} = \frac{1}{13k - 5x}$$

Question 5

Showing full working, by first multiplying both sides by x, make x the subject

$$19 = \frac{6\left(3m + x + k^2\right)}{x}$$

Question 6

Showing full working, by first adding $5x^2$ to both sides, make x the subject

$$8x^2 + m = w - 5x^2$$

Question 7

Showing full working, make x the subject

$$4(y + 3x - 5) = x + 17y$$

Question 8

Showing full working, by first expanding the brackets, make x the subject

$$3(4z^2 - 9x) = 7(2x + 7k)$$

Question 9

Showing full working, make x the subject

$$y = \sqrt{\frac{3x + 1}{x - 1}}$$

Question 10

Showing full working, make x the subject

$$9 = \frac{4x + e^2}{3x + 2wh}$$