

Mathematics

# Rearranging quadratic equations

Mr Coward



# Try this

How many different ways can you write this equation?

$$2x + 3y = 5z$$

$x$	$x$	$y$	$y$	$y$
$z$	$z$	$z$	$z$	$z$

This first two have been done for you:

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

$$2x - 5x = 3y$$



# Independent task

1) Write the following quadratics in the form  $ax^2 + bx + c = 0$

a)  $10x^2 + 11x + 3 = 9x - 1$

b)  $10x^2 - 11x + 3 = 9x - 1$

c)  $10x^2 - 11x + 3 = 9x^2 - 1$

d)  $9x^2 - 1 = 10x^2 - 11x + 3$

e)  $2x^2 = 10x^2 - 11x + 3$

f)  $2x^2 + 4x = 10x^2 + 3$

g)  $-2x^2 + 4x = -10x^2 + 3$



# Independent task

2) Write the following quadratics in the form  $ax^2 + bx + c = 0$

a)  $(2x + 3)(3x - 4) = 0$

b)  $(x + 7)(x + 3) = 3x + 5$

c)  $(x + 4)(x + 3) = 3x(x + 5)$

3) Write the following quadratics in the form  $ax^2 + bx + c = 0$

a)  $3 + 4x = \frac{5}{x}$

b)  $\frac{1}{2x} = 3x + 5$

c)  $3 = \frac{x}{x^2 + 5}$



# Explore

A quadratic equation

$$ax^2 + bx + c = 0$$

Has  $a \times b \times c = 24$ .

If  $a$ ,  $b$  and  $c$  are positive integers, what are the possible values of  $a + b + c$ ?

Write three different quadratic equations where  $a + b + c = 12$  and  $a \times b \times c = 24$ .

