

## Keeping Everything in Flux 2: The return of the killer flux

1. Solve by factorising:

(a)  $x^2 + 20 = 9x$ .

$$x = 4 \text{ or } x = 5$$

(b)  $t^2 + t = 20$ .

$$t = -5 \text{ or } t = 4$$

(c)  $3z^2 + 4 = 13z$ .

$$z = \frac{1}{3} \text{ or } z = 4$$

(d)  $4t^2 = 8t + 21$ .

$$t = -\frac{3}{2} \text{ or } t = \frac{7}{2}$$

2. In the triangle  $ABC$ , angle  $\hat{A}BC$  is a right angle. Length  $AB = 10$  and  $AC = 13$ . Find angle  $\hat{C}AB$ .

$$39.7^\circ$$

3. In the triangle  $ABC$ , angle  $\hat{A}BC$  is a right angle. Length  $AB = 13$  and  $BC = 2$ . Find angle  $\hat{A}CB$ .

$$81.3^\circ$$

4. In the triangle  $ABC$ , angle  $\hat{A}BC$  is a right angle. Length  $AB = 850$  and  $\hat{A}CB = 71^\circ$ . Find length  $BC$ .

$$292.7$$

5. Find the intersection of the lines  $5x - y = 1$  and  $2x - 3y = -10$ . [Remember that finding the intersection of two lines is done by treating the lines as simultaneous equations.]

$$(x, y) = (1, 4)$$

6. What is the gradient of the line  $y + 4x = 2$ ?

$$m = -4$$

7. What is the gradient of the line  $2x + 3y = 5$ ?

$$m = -\frac{2}{3}$$

8. What is the gradient of the line  $7x - 2y = 9$ ?

$$m = \frac{7}{2}$$

9. A line crosses the  $x$ -axis at  $(-5, 0)$  and the  $y$ -axis at  $(0, -3)$ .

(a) Find its equation in the form  $y = mx + c$ .

$$y = -\frac{3}{5}x - 3$$

(b) Now rearrange your answer in the form  $ax + by + c = 0$  where  $a$ ,  $b$  and  $c$  are integers.

$$3x + 5y + 15 = 0$$

10. A line passes through the points  $(2, 5)$  and  $(7, 4)$ .

(a) Find the gradient between the two points.

$$m = -\frac{1}{5}$$

(b) Using  $y - y_1 = m(x - x_1)$ , find its equation in the form  $y = mx + c$ .

$$y = -\frac{1}{5}x + \frac{27}{5}$$

(c) Now rearrange your answer in the form  $ax + by + c = 0$  where  $a$ ,  $b$  and  $c$  are integers.

$$x + 5y - 27 = 0$$

11. A line passes through the points  $(\frac{2}{3}, 1)$  and  $(1, \frac{1}{4})$ . Find its equation in the form  $ax + by + c = 0$  where  $a$ ,  $b$  and  $c$  are integers.

$$9x + 4y - 10 = 0$$