

## Section 1: Simultaneous equations

### Section test

1. Solve the simultaneous equations

$$x + 3y = 5$$

$$3x - y = 5$$

2. Solve the simultaneous equations

$$7a - 3b = 6$$

$$3a - 2b = 5$$

3. For the simultaneous equations

$$5a + 7b = 17$$

$$a = 1 - 3b$$

what is the correct value of  $a$  for the solution?

4. For the simultaneous equations

$$2x = 5y - 2$$

$$6y = 1 + 4x$$

what is the correct value of  $x$  for the solution?

5. The line  $y = 2x + k$  and the curve  $y = x^2 - 4x + 2$  have just one point of contact.  
Find the value of  $k$ .

6. Find the  $x$ -coordinates of the points of intersection between the line  $y = 2x + 3$  and the curve  $y = x^2 - x - 1$ .

7. For the simultaneous equations

$$s^2 + 2t^2 = 6$$

$$3s - t = 5$$

find the values of  $t$  for the solutions.

8. For the simultaneous equations

$$x^2 + 2y = 5$$

$$2x - 3y = 12$$

find the values of  $y$  for the solutions.

## Edexcel AS Maths Equations 1 section test

9. The solutions of the simultaneous equations

$$x^2 + 2xy + 1 = 0$$

$$y + x = 1$$

are

(a)  $x = 1, y = 0$  and  $x = -1, y = 2$

(b)  $x = 1 + \sqrt{2}, y = \sqrt{2}$  and  $x = 1 - \sqrt{2}, y = -\sqrt{2}$

(c)  $x = 1 + \sqrt{2}, y = -\sqrt{2}$  and  $x = 1 - \sqrt{2}, y = \sqrt{2}$

(d)  $x = 1 + \sqrt{8}, y = -\sqrt{8}$  and  $x = 1 - \sqrt{8}, y = \sqrt{8}$

10. The solutions of the simultaneous equations

$$2x^2 + y^2 = 21$$

$$y = 2x - 3$$

are

(a)  $x = 1 + \sqrt{3}, y = -1 + 2\sqrt{3}$  and  $x = 1 - \sqrt{3}, y = -1 - 2\sqrt{3}$

(b)  $x = 1 + \sqrt{12}, y = -1 + 2\sqrt{12}$  and  $x = 1 - \sqrt{12}, y = -1 - 2\sqrt{12}$

(c)  $x = 1 + \sqrt{3}, y = 2\sqrt{3} - 3$  and  $x = 1 - \sqrt{3}, y = 2\sqrt{3} - 3$

(d)  $x = 1 + \sqrt{12}, y = 2\sqrt{12} - 3$  and  $x = 1 - \sqrt{12}, y = 2\sqrt{12} - 3$