

Solving Linear Equations - Worksheet

Skill

Group A - One unknown

Solve:

1) $x + 5 = 15$

2) $x + 6 = 15$

3) $x + 7 = 15$

4) $2x + 5 = 15$

5) $2x + 7 = 15$

6) $2x + 6 = 15$

7) $2x - 7 = 15$

8) $2x - 7 = -15$

9) $7 - 2x = 15$

10) $6 - 3x = 15$

11) $6 - 3x = -15$

12) $-6 - 3x = -15$

Group B - Unknown on both sides

Solve:

1) $2x + 6 = x + 8$

2) $3x + 6 = x + 8$

3) $4x + 6 = x + 8$

4) $2x - 6 = x + 8$

5) $3x - 6 = x + 8$

6) $3x - 8 = x + 6$

7) $3x - 8 = x - 6$

8) $8 - 2x = x - 7$

9) $8 - 3x = x - 7$

Group C - With brackets

Solve:

1) $2(x + 3) = 12$

2) $3(x + 3) = 12$

3) $3(x - 3) = 12$

4) $3(x + 3) = 2(x + 2)$

5) $3(x + 3) = 2(x - 2)$

6) $3(x - 3) = 2(x - 2)$

7) $-3(x + 3) = -2(x + 2)$

8) $-3(x - 3) = -2(x + 2)$

9) $-3(x - 3) = -2(x - 2)$

Solving Linear Equations - Worksheet

Group D - With fractions

Solve:

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

$$2) \frac{x-2}{3} = \frac{x-3}{2}$$

$$3) \frac{x-2}{6} = \frac{x-3}{4}$$

$$4) \frac{2x+2}{3} = \frac{x-3}{2}$$

$$5) \frac{2x+2}{4} = \frac{x-3}{3}$$

$$6) \frac{3x-2}{3} = \frac{2x-3}{4}$$

$$7) \frac{2(x+2)}{3} = \frac{3(x-3)}{2}$$

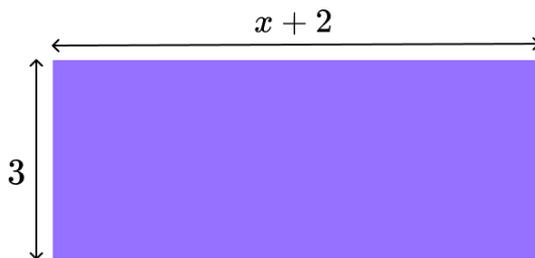
$$8) \frac{3(x+2)}{3} = \frac{3(x-3)}{2}$$

$$9) \frac{3(x-2)}{2} = \frac{6(x-3)}{2}$$

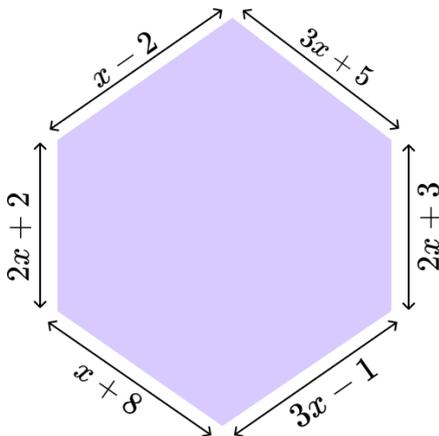
Solving Linear Equations - Worksheet

Applied

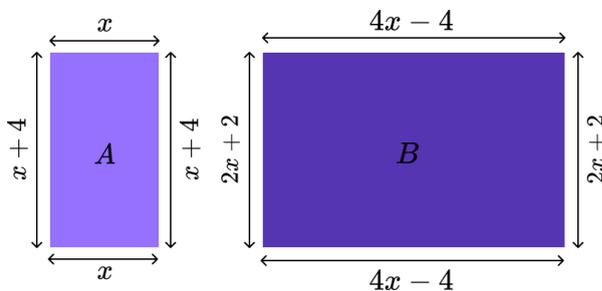
- 1) The area of the rectangle is equal to 12cm^2 .
Calculate the value of x .



- 2) The perimeter of the irregular hexagon is 51cm . Calculate the value of x .



- 3) The perimeter of shape B is equal to twice the perimeter of the shape A .



- (a) What is the value of x ?
- (b) What is the perimeter of shape B in cm ?

Solving Linear Equations - Exam Questions

- 1) (a) Solve:
 $3y = 36$ (1)
- (b) Solve:
 $9 - b = 12$ (1)
- (c) Solve:
 $\frac{x}{5} = 4$ (1)
(3 marks)
-

- 2) (a) Solve:
 $2t - 3 = 7$ (1)
- (b) Solve:
 $4(2x + 3) = 16$ (2)
- (c) Solve:
 $15y - 3 = 7y + 13$ (2)
(5 marks)
-

- 3) (a) Solve:
 $3x^2 = 27$ (1)
- (b) Solve:
 $4(3 - x) = 32$ (2)
- (c) Solve:
 $\frac{2x+3}{5} = \frac{x-5}{2}$ (3)
(6 marks)

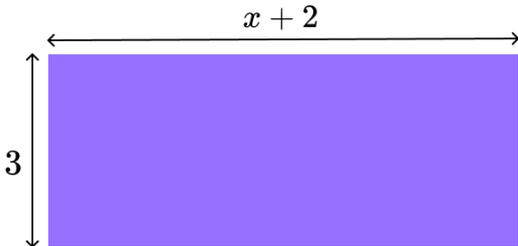
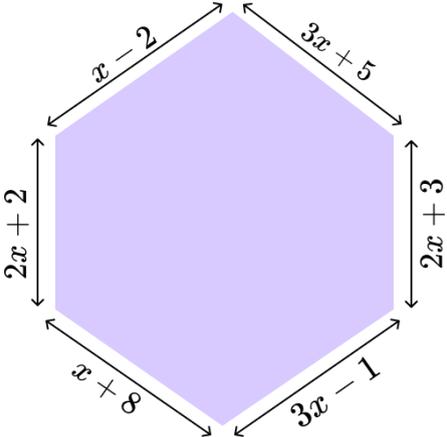
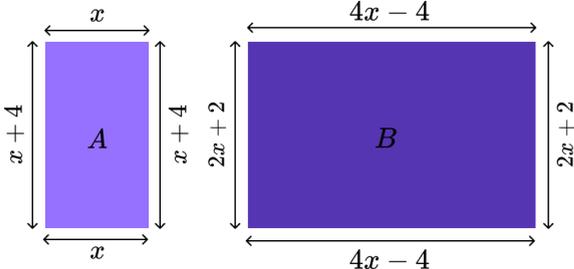
Solving Linear Equations - Answers

	Question	Answer
	Skill Questions	
Group A	Solve: 1) $x + 5 = 15$ 2) $x + 6 = 15$ 3) $x + 7 = 15$ 4) $2x + 5 = 15$ 5) $2x + 7 = 15$ 6) $2x + 6 = 15$ 7) $2x - 7 = 15$ 8) $2x - 7 = -15$ 9) $7 - 2x = 15$ 10) $6 - 3x = 15$ 11) $6 - 3x = -15$ 12) $-6 - 3x = -15$	1) $x = 10$ 2) $x = 9$ 3) $x = 8$ 4) $x = 5$ 5) $x = 4$ 6) $x = \frac{9}{2} = 4.5$ 7) $x = 11$ 8) $x = -4$ 9) $x = -4$ 10) $x = -3$ 11) $x = 7$ 12) $x = 3$
Group B	Solve: 1) $2x + 6 = x + 8$ 2) $3x + 6 = x + 8$ 3) $4x + 6 = x + 8$ 4) $2x - 6 = x + 8$ 5) $3x - 6 = x + 8$ 6) $3x - 8 = x + 6$ 7) $3x - 8 = x - 6$ 8) $8 - 3x = x - 7$ 9) $8 - 2x = x - 7$	1) $x = 2$ 2) $x = 1$ 3) $x = \frac{2}{3}$ 4) $x = 14$ 5) $x = 7$ 6) $x = 7$ 7) $x = 1$ 8) $x = 5$ 9) $x = \frac{15}{4}$ or $x = 3.75$

Solving Linear Equations - Answers

Group C	Solve: 1) $2(x + 3) = 12$ 2) $3(x + 3) = 12$ 3) $3(x - 3) = 12$ 4) $3(x + 3) = 2(x + 2)$ 5) $3(x + 3) = 2(x - 2)$ 6) $3(x - 3) = 2(x - 2)$ 7) $-3(x + 3) = -2(x + 2)$ 8) $-3(x - 3) = -2(x + 2)$ 9) $-3(x - 3) = -2(x - 2)$	1) $x = 3$ 2) $x = 1$ 3) $x = 7$ 4) $x = -5$ 5) $x = -13$ 6) $x = 5$ 7) $x = -5$ 8) $x = 13$ 9) $x = 5$
Group D	Solve: 1) $\frac{x+2}{3} = \frac{x+3}{2}$ 2) $\frac{x-2}{3} = \frac{x-3}{2}$ 3) $\frac{x-2}{6} = \frac{x-3}{4}$ 4) $\frac{2x+2}{3} = \frac{x-3}{2}$ 5) $\frac{2x+2}{4} = \frac{x-3}{3}$ 6) $\frac{3x-2}{3} = \frac{2x-3}{4}$ 7) $\frac{2(x+2)}{3} = \frac{3(x-3)}{2}$ 8) $\frac{3(x+2)}{3} = \frac{3(x-3)}{2}$ 9) $\frac{3(x-2)}{2} = \frac{6(x-3)}{2}$	1) $x = -5$ 2) $x = 5$ 3) $x = 5$ 4) $x = -13$ 5) $x = -9$ 6) $x = -\frac{1}{6}$ 7) $x = 7$ 8) $x = 13$ 9) $x = 4$

Solving Linear Equations - Answers

	Question	Answer
	Applied Questions	
1)	<p>The area of the rectangle is equal to 12cm^2. Calculate the value of x.</p> 	$x = 2$
2)	<p>The perimeter of the irregular hexagon is 51cm. Calculate the value of x.</p> 	$x = 3$
3)	<p>The perimeter of shape B is equal to twice the perimeter of the shape A.</p>  <p>(a) What is the value of x?</p> <p>(b) What is the perimeter of shape B in cm?</p>	<p>(a) $x = 5$</p> <p>(b) 56cm</p>

Solving Linear Equations - Mark Scheme

	Question	Answer	
	Exam Questions		
1) (a)	Solve: $3y = 36$	(a) $y = 12$	(1)
(b)	Solve: $9 - b = 12$	(b) $b = -3$	(1)
(c)	Solve: $\frac{x}{5} = 4$	(c) $x = 20$	(1)
2) (a)	Solve: $2t - 3 = 7$	(a) $t = 5$	(1)
(b)	Solve: $4(2x + 3) = 16$	(b) $8x + 12 = 16$ or $2x + 3 = 4$ $x = \frac{1}{2} = 0.5$	(1) (1)
(c)	Solve: $15y - 3 = 7y + 13$	(c) $8y = 16$ $y = 2$	(1) (1)
3) (a)	Solve: $3x^2 = 27$	(a) $y = \pm 3$	(1)
(b)	Solve: $4(3 - x) = 32$	(b) $12 - 4x = 32$ or $3 - x = 8$ $x = -5$	(1) (1)
(c)	Solve: $\frac{2x+3}{5} = \frac{x-5}{2}$	(c) $2(2x + 3) = 5(x - 5)$ $4x + 6 = 5x - 25$ $x = 31$	(1) (1) (1)

Do you have KS4 students who need additional support in maths?

Our specialist tutors will help them develop the skills they need to succeed at GCSE in weekly one to one online revision lessons. Trusted by secondary schools across the UK.

Visit thirdspacelearning.com to find out more.