

Solving Quadratics by Factorising

ANSWERS

1 one of the brackets must be 0

Solve $x^2 + 5x + 6 = 0$

×	x	$+2$
x	x^2	$+2x$
$+3$	$+3x$	$+6$

$$(x + 3)(x + 2) = 0$$

$$x + 3 = 0$$

$$x = -3$$

$$x + 2 = 0$$

$$x = -2$$

2

Solve $x^2 + 9x + 14 = 0$

×	x	$+2$
x	x^2	$+2x$
$+7$	$+7x$	$+14$

$$(x + 7)(x + 2) = 0$$

$$x + 7 = 0$$

$$x = -7$$

$$x + 2 = 0$$

$$x = -2$$

3

Solve $x^2 + 10x + 24 = 0$

×	x	$+4$
x	x^2	$+4x$
$+6$	$+6x$	$+24$

$$(x + 6)(x + 4) = 0$$

$$x + 6 = 0$$

$$x = -6$$

$$x + 4 = 0$$

$$x = -4$$

4

Solve $x^2 + 3x - 10 = 0$

×	x	-2
x	x^2	$-2x$
$+5$	$+5x$	-10

$$(x + 5)(x - 2) = 0$$

$$x + 5 = 0$$

$$x = -5$$

$$x - 2 = 0$$

$$x = 2$$

5 Notice the change!

Solve $x^2 - 8x + 15 = 0$

×	x	-5
x	x^2	$-5x$
-3	$-3x$	$+15$

$$(x - 3)(x - 5) = 0$$

$$x - 3 = 0$$

$$x = 3$$

$$x - 5 = 0$$

$$x = 5$$

6

Solve $x^2 - 5x - 36 = 0$

×	x	-9
x	x^2	$-9x$
$+4$	$+4x$	-36

$$(x + 4)(x - 9) = 0$$

$$x + 4 = 0$$

$$x = -4$$

$$x - 9 = 0$$

$$x = 9$$

7

Solve $x^2 + 3x = 10$

$$x^2 + 3x - 10 = 0$$

Answer $x = 2 \text{ or } -5$

8

A rectangle has sides of x and $x + 3$. Its area is 28. Find x .

$$(x + 7)(x - 4) = 0, \text{ and a length is positive}$$

Answer $x = 4$

Solving Quadratics by Factorising further practice

ANSWERS

9

Solve $x^2 - 2x - 24 = 0$

$$(x - 6)(x + 4) = 0$$

Answer $x = 6 \text{ or } x = -4$

10

Solve $x^2 - 7x = 0$

$$x(x - 7) = 0$$

Answer $x = 0 \text{ or } x = 7$

11

Solve $x^2 - 36 = 0$

$$(x + 6)(x - 6) = 0$$

Answer $x = 6 \text{ or } x = -6$

12

Solve $x^2 = 4x + 21$

$$x^2 - 4x - 21 = 0$$

$$(x - 7)(x + 3) = 0$$

Answer $x = 7 \text{ or } x = -3$

13

Kofi thinks of a positive number. He squares it, then subtracts 3 times the number. His answer is 28. What number did he think of?

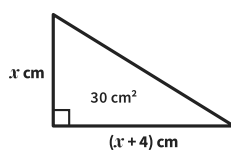
$$x^2 - 3x - 28 = 0$$

$$(x - 7)(x + 4) = 0$$

Answer 7

14

The area of this right angled triangle is 30 cm^2 . Find x .



$$\frac{x(x + 4)}{2} = 30$$

$$x^2 + 4x - 60 = 0$$

Answer $x = 6$

15

A square patio has sides of $x \text{ m}$. It is made 3 m longer in one direction. The new rectangle has an area of 40 m^2 . How long was each side of the square patio?

$$x(x + 3) = 40$$

$$(x + 8)(x - 5) = 0$$

Answer 5 m

16

Ade solves $x^2 - x - 12 = 0$. He writes $(x - 4)(x + 3) = 0$, so $x = -4$ or $x = 3$. What has Ade done wrong? Find the right answer.

$$x - 4 = 0 \text{ gives } x = 4$$

Answer $x = 4 \text{ or } x = -3$