Solving Harder Quadratics by Factorising

1 split the middle term, then find the headings

Solve $3x^2 + 7x + 2 = 0$

the first number times the last

$3 \times 2 =$ 6

multiply to make that, add to make 7

[ ] and [ ]

×		
	$3x^2$	
		+2

= 0

$x =$ [ ] or $x =$ [ ]

2

Solve $2x^2 + 11x + 5 = 0$

the first number times the last

$2 \times 5 =$ [ ]

multiply to make that, add to make 11

[ ] and [ ]

×		
	$2x^2$	
		+5

= 0

$x =$ [ ] or $x =$ [ ]

3

Solve $2x^2 + 5x - 3 = 0$

$2 \times -3 =$ [ ]

[ ] and [ ]

×		

= 0

$x =$ [ ] or $x =$ [ ]

4 *Notice the change!*

Solve $3x^2 - 10x + 8 = 0$

$3 \times 8 =$ [ ]

[ ] and [ ]

×		

= 0

$x =$ [ ] or $x =$ [ ]

5

Solve $5x^2 + 13x - 6 = 0$

$5 \times -6 =$ [ ]

[ ] and [ ]

×		

= 0

$x =$ [ ] or $x =$ [ ]

6 make it = 0 first

Solve $2x^2 = 3x + 9$

$2 \times -9 =$ [ ]

[ ] and [ ]

×		

= 0

$x =$ [ ] or $x =$ [ ]

7

Sam solves $(3x - 2)(x + 4) = 0$.

He writes $x = 2$ or $x = -4$.

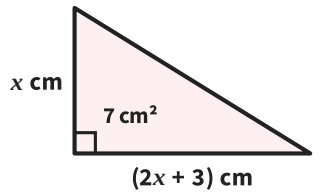
Explain his mistake. Then write the right answers.

Answer _____

8

The triangle has an area of 7 cm².

Find x.



Answer _____

Solving Harder Quadratics by Factorising *further practice*

9

Solve $3x^2 + 11x + 6 = 0$

Answer _____

10

Solve $4x^2 + 4x - 3 = 0$

Answer _____

11

Solve $6x^2 = 7x + 3$

Answer _____

12

Show that $x = -4$ is a solution of $2x^2 + 5x - 12 = 0$. Then find the other solution.

Answer _____

13

Solve $(x + 2)(2x - 1) = 7$

Answer _____

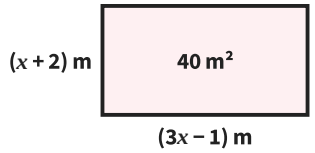
14

Three times the square of a number is equal to 11 times the number, plus 4. Find both possible values of the number.

Answer _____

15

A rectangular patio has an area of 40 m^2. Find x, then the perimeter of the patio.



Answer _____

16

Explain why $2x^2 + 5x + 4 = 0$ cannot be solved by factorising.

Answer _____