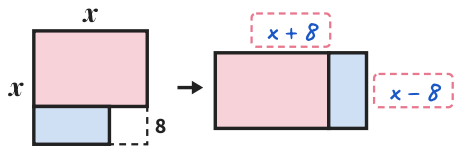
The difference of two squares

ANSWERS

1

Factorise $x^2 - 64$

turn the blue piece and stand it on the right



square root each term

√ of x^2 is x √ of 64 is 8

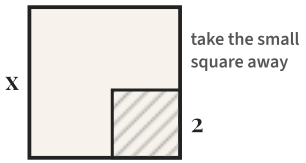
one bracket with +, one with −

$(x + 8)(x - 8)$

Answer $(x + 8)(x - 8)$

2

Factorise $x^2 - 4$



square root each term

√ of x^2 is x √ of 4 is 2

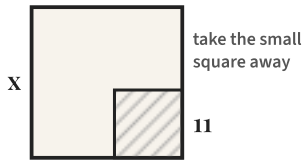
one bracket with +, one with −

$(x + 2)(x - 2)$

Answer $(x + 2)(x - 2)$

3

Factorise $x^2 - 121$



square root each term

√ of x^2 is x √ of 121 is 11

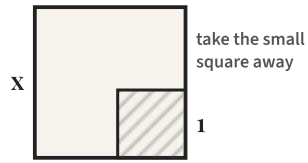
one bracket with +, one with −

$(x + 11)(x - 11)$

Answer $(x + 11)(x - 11)$

4

Factorise $x^2 - 1$



square root each term

√ of x^2 is x √ of 1 is 1

one bracket with +, one with −

$(x + 1)(x - 1)$

Answer $(x + 1)(x - 1)$

5

Factorise $9x^2 - 4$

√ of $9x^2$ is $3x$ √ of 4 is 2

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

Answer $(3x + 2)(3x - 2)$

6

Factorise $25x^2 - 49$

√ of each: $5x$ and 7

Answer $(5x + 7)(5x - 7)$

7

Tom writes

$x^2 - 100 = (x - 10)(x - 10)$

Expand his brackets to show he is wrong.

Then factorise $x^2 - 100$ correctly.

$(x - 10)(x - 10) = x^2 - 10x - 10x + 100$

$= x^2 - 20x + 100$, not $x^2 - 100$

Answer $(x + 10)(x - 10)$

8

Work out $82^2 - 18^2$ without a calculator.

$(82 + 18)(82 - 18) = 100 \times 64$

Answer 6400

The difference of two squares *further practice*

ANSWERS

9

Factorise $49x^2 - 1$

$\sqrt{49x^2} = 7x$ and $\sqrt{1} = 1$

Answer $(7x + 1)(7x - 1)$

10

Which of these are the difference of two squares? Circle them, then factorise each one you circle.

$x^2 - 36$	$x^2 + 49$
$x^2 - 18$	$4x^2 - 81$

$(x + 6)(x - 6)$ $(2x + 9)(2x - 9)$

Answer $x^2 - 36$ and $4x^2 - 81$

11

Find the missing terms.

$16x^2 - \square = (4x + 3)(\square - 3)$

$3 \times 3 = 9$ and $4x \times 4x = 16x^2$

Answer $16x^2 - 9 = (4x + 3)(4x - 3)$

12

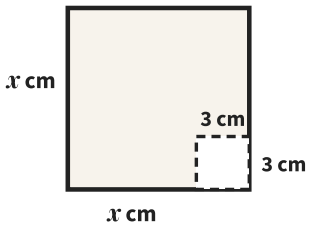
Work out $205^2 - 195^2$ without a calculator.

$(205 + 195)(205 - 195) = 400 \times 10$

Answer 4000

13

A square tile has sides of x cm.
A square with sides of 3 cm is cut from one corner. Write the area that is left as two brackets multiplied.



$x^2 - 9$

Answer $(x + 3)(x - 3)$ cm^2

14

Ama says $(x - 8)^2 = x^2 - 64$.
Is she right? Explain.

$(x - 8)^2 = x^2 - 16x + 64$

the middle terms don't cancel

Answer No

15

Work out 47×53 without a calculator. Use $47 = 50 - 3$ and $53 = 50 + 3$.

$(50 - 3)(50 + 3) = 50^2 - 3^2 = 2500 - 9$

Answer 2491

16

Sami says
$x^2 - 50 = (x + 25)(x - 25)$.
Explain his mistake.

$(x + 25)(x - 25)$ expands to $x^2 - 625$

50 is not a square number

Answer square root, don't halve