

# Factorise a quadratic (higher)

Maths

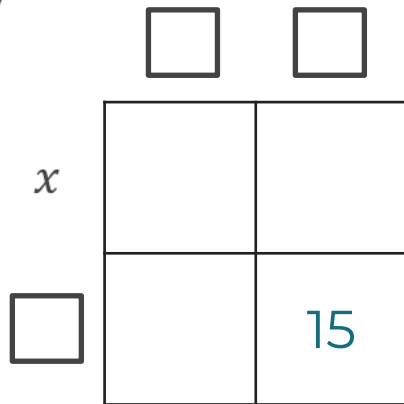
Mr Clasper



# Factorise a quadratic (higher)

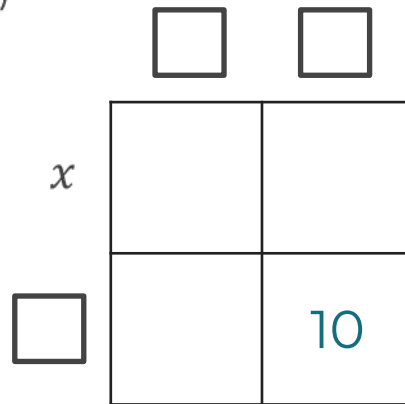
1. Fill in the blanks for each multiplication grid.

a)



$$2x^2 + 11x + 15 = (2x + \boxed{\phantom{00}})(x + \boxed{\phantom{00}})$$

b)



$$3x^2 + 17x + 10 = (3x + \boxed{\phantom{00}})(x + \boxed{\phantom{00}})$$



## Factorise a quadratic (higher)

2. Factorise each expression

- a)  $2x^2 + 7x + 6$       d)  $2x^2 - 3x - 5$   
b)  $2x^2 + 13x + 15$     e)  $3x^2 + 5x - 2$   
c)  $2x^2 - 7x - 15$       f)  $5x^2 - 33x - 14$

3. Match each expression to another to make an equivalent pair.

$$(3x + 1)(4x + 2)$$

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

$$(6x + 1)(2x + 3)$$

$$12x^2 + 25x + 2$$

$$12x^2 + 10x + 2$$

$$12x^2 + 20x + 3$$

4. Ashraf is trying to factorise  $6x^2 + 17x + 5$ . He says

“The first bracket will have  $6x$  and the second will have  $x$ , because  $6x$  multiplied by  $x$  is  $6x^2$ ”

$$(6x \quad \quad)(x \quad \quad)$$

Explain why Ashraf is wrong.



# Answers



# Factorise a quadratic (higher)

1. Fill in the blanks for each multiplication grid.

a)

	$2x$	$5$
$x$		
$3$		$15$

$$2x^2 + 11x + 15 = (2x + 5)(x + 3)$$

b)

	$3x$	$2$
$x$		$2x$
$5$	$15x$	$10$

$$3x^2 + 17x + 10 = (3x + 2)(x + 5)$$



## Factorise a quadratic (higher)

2. Factorise each expression

a)  $2x^2 + 7x + 6$        $(2x + 3)(x + 2)$

b)  $2x^2 + 13x + 15$        $(2x + 3)(x + 5)$

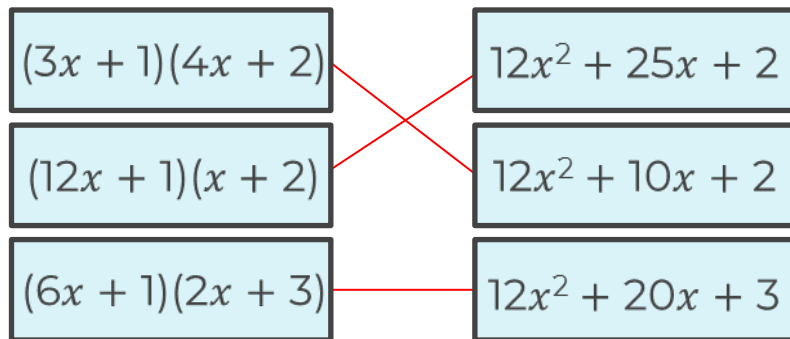
c)  $2x^2 - 7x - 15$        $(2x + 3)(x - 5)$

d)  $2x^2 - 3x - 5$        $(2x - 5)(x + 1)$

e)  $3x^2 + 5x - 2$        $(3x - 1)(x + 2)$

f)  $5x^2 - 33x - 14$        $(5x + 2)(x - 7)$

3. Match each expression to another to make an equivalent pair.



## Factorise a quadratic (higher)

4. Ashraf is trying to factorise  $6x^2 + 17x + 5$ . He says

“The first bracket will have  $6x$  and the second will have  $x$ , because  $6x$  multiplied by  $x$  is  $6x^2$ ”

$$(6x \quad \quad)(x \quad \quad)$$

Explain why Ashraf is wrong.

He needs to use  $3x$  and  $2x$  to factorise the expression correctly.  
The correct answer would be  $(3x + 1)(2x + 5)$

