

FACTORISING QUADRATICS

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Worked example

$$\times = 24$$

$$+ = 10$$

$$\times = 24$$

$$+ = -10$$

$$\times = -24$$

$$+ = 10$$

$$\times = -24$$

$$+ = -12$$

Your turn

$$3 \times 6 = 18$$

$$3 + 6 = 9$$

$$-3 \times -6 = 18$$

$$-3 + -6 = -9$$

$$9 \times -2 = -18$$

$$9 + -2 = 7$$

$$-9 \times 2 = -18$$

$$-9 + 2 = -7$$

Worked example

Factorise:

$$x^2 + 25x + 24$$

$$x^2 + 14x + 24$$

$$x^2 + 11x + 24$$

$$x^2 + 10x + 24$$

Your turn

Factorise:

$$x^2 + 37x + 36$$

$$(x + 36)(x + 1)$$

$$x^2 + 20x + 36$$

$$(x + 18)(x + 2)$$

$$x^2 + 15x + 36$$

$$(x + 12)(x + 3)$$

$$x^2 + 13x + 36$$

$$(x + 9)(x + 4)$$

$$x^2 + 12x + 36$$

$$(x + 6)^2$$

Worked example

Factorise:

$$x^2 + 10x + 9$$

$$x^2 + 10x + 16$$

$$x^2 + 10x + 21$$

$$x^2 + 10x + 24$$

$$x^2 + 10x + 25$$

$$x^2 + 10x$$

Your turn

Factorise:

$$x^2 + 12x + 11 \quad (x + 11)(x + 1)$$

$$x^2 + 12x + 20 \quad (x + 10)(x + 2)$$

$$x^2 + 12x + 27 \quad (x + 9)(x + 3)$$

$$x^2 + 12x + 32 \quad (x + 8)(x + 4)$$

$$x^2 + 12x + 35 \quad (x + 7)(x + 5)$$

$$x^2 + 12x + 36 \quad (x + 6)^2$$

$$x^2 + 12x \quad x(x + 12)$$

Worked example

Factorise:

$$x^2 + 10x + 24$$

$$x^2 - 10x + 24$$

$$x^2 + 10x - 24$$

$$x^2 - 10x - 24$$

$$x^2 - 10x$$

Your turn

Factorise:

$$x^2 + 9x + 20 \quad (x + 5)(x + 4)$$

$$x^2 - 9x + 20 \quad (x - 5)(x - 4)$$

$$x^2 + 9x - 10 \quad (x + 10)(x - 1)$$

$$x^2 - 9x - 10 \quad (x - 10)(x + 1)$$

$$x^2 - 9x \quad x(x - 9)$$

Worked example

Factorise:

$$x^2 + 4x$$

$$x^2 - 6x$$

$$2x^2 - 6x$$

Your turn

Factorise:

$$3x^2 - 12x$$

$$3x(x - 4)$$

Worked example

Factorise:

$$x^2 + x - 2$$

$$x^2 - x - 2$$

$$x^2 - x - 6$$

$$x^2 + x - 12$$

Your turn

Factorise:

$$x^2 - x - 20$$

$$(x - 5)(x + 4)$$

Worked example

Factorise:

$$2x^2 + 13x + 15$$

$$3x^2 + 17x + 10$$

Your turn

Factorise:

$$3x^2 + 11x + 10$$

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

Worked example

Factorise:

$$2x^2 - 13x + 15$$

$$3x^2 - 17x + 10$$

Your turn

Factorise:

$$3x^2 - 11x + 10$$

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

Worked example

Factorise:

$$2x^2 + 2x - 12$$

$$3x^2 - 12x - 15$$

Your turn

Factorise:

$$5x^2 - 15x + 10$$

$$5(x - 2)(x - 1)$$

Worked example

Factorise:

$$3x^2 + 10x + 3$$

$$3x^2 + 10x + 8$$

$$3x^2 + 14x + 8$$

Your turn

Factorise:

$$5x^2 + 8x + 3$$
$$(5x + 3)(x + 1)$$

$$5x^2 + 16x + 12$$
$$(5x + 6)(x + 2)$$

$$5x^2 + 32x + 12$$
$$(5x + 2)(x + 6)$$

Worked example

Factorise:

$$(x^2 - y^2) - (x - y)^2$$

Your turn

Factorise:

$$(n^2 - a^2) - (n - a)^2$$

$$2a(n - a)$$

Worked example

Factorise:

$$(x + y)^2 + (x + y)(2x + 5y)$$

$$(a + b)^2 - (a + b)(2a - 3b)$$

Your turn

Factorise:

$$(p + q)^2 + (p + q)(4p + 9q)$$

$$5(p + q)(p + 2q)$$