

GCSE –Mathematics only

Tier: Intermediate

Grade: B/C

Topic: Expanding and factorising quadratics (factorising when a = 1)



Starter

Factorise the following:

(a) $3x + 9 =$

(b) $15x - x^3 =$

(c) $12x^2 + 48x =$

Top Tips!

Factorising - take out any factors that are common to each term.

The process is the opposite of expanding brackets.

Expanding brackets: Remember **FOIL (First, Outer, Inner, Last)**

$$(a + b)(c + d) = ac + ad + bc + bd$$

Skills practice:

1. Factorise the following:

(a) $x^2 + 4x + 3 =$

(b) $x^2 + 15x + 44 =$

(c) $x^2 - 14x + 24 =$

(d) $x^2 - 7x + 10 =$

2. Expand the following:

(a) $(x + 5)(x + 4) =$

(b) $(x + 8)(x - 4) =$

(c) $(2x + 7)(2x + 3) =$

(d) $(4x - 5)(4x + 2) =$

Assessment for Learning

Video / QR code



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Factorise the following:

(a) $3x + 9 = 3(x + 3)$

(b) $15x - x^3 = x(15 - x^2)$

(c) $12x^2 + 48x = 12x(x + 4)$

Top Tips!**Factorising** - take out any factors that are common to each term.

The process is the opposite of expanding brackets.

Expanding brackets: Remember FOIL (First, Outer, Inner, Last)

$$(a + b)(c + d) = ac + ad + bc + bd$$

Examination Question:

1. Factorise the following:

(a) $x^2 + 4x + 3 = (x + 3)(x + 1)$

(b) $x^2 + 15x + 44 = (x + 11)(x + 4)$

(c) $x^2 - 14x + 24 = (x - 12)(x - 2)$

(d) $x^2 - 7x + 10 = (x - 5)(x - 2)$

2. Expand the following:

(a) $(x + 5)(x + 4) = x^2 + 9x + 20$

(b) $(x + 8)(x - 4) = x^2 + 4x - 32$

(c) $(2x + 7)(2x + 3) = 4x^2 + 20x + 21$

(d) $(4x - 5)(4x + 2) = 16x^2 - 12x - 10$

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