

Factorising into single brackets

Starter

1. **(Review of last lesson)** Expand and simplify:

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

(b) $(x - 2)(x + 5)^2$

Working: (a) $(x - 3)(x + 3) = x^2 + 3x - 3x - 9 = x^2 - 9$
 $\therefore (2x + 3)(x - 3)(x + 3) = (2x + 3)(x^2 - 9)$
 $= 2x^3 - 18x + 3x^2 - 27$
 $= 2x^3 + 3x^2 - 18x - 27$

(b) $(x + 5)^2 = x^2 + 10x + 25$
 $\therefore (x - 2)(x + 5)^2 = (x - 2)(x^2 + 10x + 25)$
 $= x^3 + 10x^2 + 25x - 2x^2 - 20x - 50$
 $= x^3 + 8x^2 + 5x - 50$

N.B. Factorising is the opposite to expanding brackets.

2. **(Review of previous material)**

Factorise: (a) $6x + 8$ (b) $12x - 16y$ (c) $10a^2 - 15ab$

Working: (a) $6x + 8 = 2(3x + 4)$

(b) $12x - 16y = 4(3x - 4y)$

(c) $10a^2 - 15ab = 5a(2a - 3b)$

E.g. 1 Factorise these expressions:

(a) $2x - 11x^2$

(b) $56x - 32y$

(c) $36p^2 + 20p$

(d) $45x^2y + 30xy^2$

(e) $14p^3q^4 + 21p^2q$

(f) $24x^2y - 36xy + 18xy^3$

Working: (a) $2x - 11x^2 = x(2 - 11x)$

(b) $56x - 32y = 8(7x - 4y)$

(c) $36p^2 + 20p = 4p(9p + 5)$

(d) $45x^2y + 30xy^2 = 15xy(3x + 2y)$

(e) $14p^3q^4 + 21p^2q = 7p^2q(2pq^3 + 3)$

(f) $24x^2y - 36xy + 18xy^3 = 6xy(4x - 6 + 3y^2)$

Video: [Factorisation](#)

[Solutions to Starter and E.g.s](#)

Exercise

9-1 class textbook:

p108 M4.7 Qu 1-54 odd

A*-G class textbook:

p97 M4.6 Qu 1-50 odd

9-1 homework book:

p38 M4.7 Qu 1-29

A*-G homework book:

p28 M4.6 Qu 1-27