

1 Like terms and brackets



- a) Simplify $6p^2 - 4pq + 2p^2 + 9pq$
b) Expand and simplify $4(3x - 2) - 5(x - 3)$

a) $8p^2 + 5pq$
b) $12x - 8 - 5x + 15 = 7x + 7$

2 Double and triple brackets



Expand and simplify

- a) $(3y - 2)^2$
b) $(x + 2)(x - 1)(2x + 3)$

a) $9y^2 - 12y + 4$
b) $(x^2 + x - 2)(2x + 3)$
 $2x^3 + 5x^2 - x - 6$

3 Factorising: one bracket



Factorise fully

- a) $15a^2b - 10ab^2$
b) $8x^3y + 12x^2y^2 - 4x^2y$

a) $5ab(3a - 2b)$
b) $4x^2y(2x + 3y - 1)$

4 Factorising quadratics



- a) Factorise $x^2 - 3x - 28$
b) $(x + 2)(x + m) = x^2 + kx + 18$.
Find m and k .

a) $(x - 7)(x + 4)$
b) $m = 9, k = 11$

5 Harder factorising



Factorise fully

- a) $3x^2 + 10x - 8$
b) $18x^2 - 50$

a) $(3x - 2)(x + 4)$
b) $2(9x^2 - 25)$
 $2(3x - 5)(3x + 5)$

Expanding brackets, factorising and solving quadratics

revision mat answers



Higher A

6 Algebraic fractions



- a) Simplify $\frac{x^2 - 9}{x^2 + x - 6}$
b) Write $\frac{2}{x+1} + \frac{3}{x-2}$ as a single fraction.

a) $\frac{(x-3)(x+3)}{(x+3)(x-2)} = \frac{x-3}{x-2}$
b) $2(x-2) + 3(x+1) = 5x - 1$
 $\frac{5x-1}{(x+1)(x-2)}$

7 Solving by factorising



Solve

- a) $x^2 + 2x - 35 = 0$
b) $2x^2 = 7x + 15$

a) $(x + 7)(x - 5) = 0, x = -7 \text{ or } 5$
b) $(2x + 3)(x - 5) = 0$
 $x = -1.5 \text{ or } 5$

8 The quadratic formula



Give your answers to 2 decimal places.

- a) Solve $3x^2 - 4x - 2 = 0$
b) A rectangle is x cm wide and $(x + 4)$ cm long. Its area is 15 cm^2 . Find x .

a) $x = \frac{4 \pm \sqrt{40}}{6} = 1.72 \text{ or } -0.39$
b) $x^2 + 4x - 15 = 0, x = 2.36$

9 Completing the square



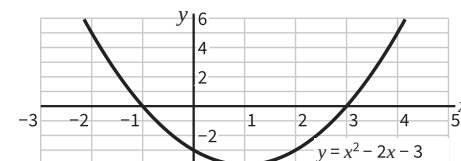
- a) Write $x^2 - 8x + 5$ in the form $(x + p)^2 + q$
b) Hence solve $x^2 - 8x + 5 = 0$.
Leave your answers as surds.

a) $(x - 4)^2 - 11$
b) $x - 4 = \pm\sqrt{11}, x = 4 \pm \sqrt{11}$

10 Quadratic graphs



- a) Write down the roots and turning point.
b) Use the graph to solve $x^2 - 2x - 3 = 5$.



a) $x = -1, 3; (1, -4)$
b) $x = -2 \text{ or } 4$