

S4 National 5 Homework

Mixed questions 1A

Q1. Fully factorise:

(a) $x^2 - x - 12$

(b) $2x^2 - 2x - 24$

(c) $5x^2 - 45y^2$

Q2. Write these quadratic expressions in the form $(x+a)^2 + b$;
(**Hint:** Completing the square)

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

(b) $x^2 - 12x + 21$

Q3. Multiply out and simplify the following:

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

(b) $12 - (x-3)^2$

(c) $(2x-1)^2 - (x+4)^2$

Q4. Find the gradients of the lines joining the following pairs of points:

(a) A(-1, -2) & B(3, 6)

(b) C(4, -2) & D(-1, -5)

Q5. A cylindrical tea urn is 80cm high, and has a base of radius 25cm.
Calculate:

(a) its capacity in litres

(b) the number of 200ml cups it can hold