

Test 1: Algebra

Question 1:

$$1.1.1) x \in \{-14, -5, 0\} \quad \checkmark$$

$$1.1.2) x \in \{-11, 0, 5\} \quad \checkmark$$

$$1.1.3) x = 11 \quad \checkmark$$

$$1.1.4) x = 14 \quad \checkmark$$

} All 3 values
to get
mark.

(4)

Question 2:

$$\begin{aligned} 2.1.1) &= (3x^2 - 5y)(3x^2 - 5y) \\ &= 9x^4 - 15x^2y - 15x^2y + 25y^2 \quad \checkmark \\ &= 9x^4 - 30x^2y + 25y^2 \quad \checkmark \end{aligned}$$

(4)

$$2.1.2) = 6 + 2a - 3b - ab \quad \checkmark$$

(4)

$$\begin{aligned} 2.1.3) &= p^3 + 2p^2 + 4p - 2p^2 - 4p - 8 \quad \checkmark \checkmark \\ &= p^3 - 8 \quad \checkmark \end{aligned}$$

(4)

$$2.2.1) = 2(x^4 - 16) \quad \checkmark$$

$$= 2(x^2 + 4)(x^2 - 4) \quad \checkmark$$

$$= 2(x^2 + 4)(x + 2)(x - 2) \quad \checkmark$$

(4)

$$2.2.2) = (2m - 3)(m - 1) \quad \checkmark$$

(4)

$$2.2.3) = (x-y)(x^2+xy+y^2) - 2(x-y) \\ = (x-y)(x^2+xy+y^2-2) \quad (4)$$

Question 3

$$3.1) (x+2)^2 = (x+2)(x+2) \\ = x^2 + 4x + 4 \quad \checkmark$$

$\therefore$ We need to $+5x$ to $x^2 - x + 4$

(3)

$$3.2) 27x^3 + 1 \\ = (3x+1)(9x^2-3x+1) \quad \checkmark \\ \therefore \text{we } \div \text{ with } 9x^2-3x+1 \quad (3)$$

$$3.3) = \frac{(x+1)(x^2-x+1)}{(x^2-x+1)}$$

$$= x+1 \quad \checkmark$$

$$\therefore = 7,85 + 1$$

$$= 8,85 \quad \checkmark$$

(4)

$$3.4) a^3 - 8b^3 \\ = (a-2b)(a^2+2ab+4b^2) \quad \checkmark$$

$\therefore$ with $(a^2+2ab+4b^2) \quad \checkmark$

(3)

Question 4

$$4.1) = \frac{x}{(x+y)} + \frac{x^2}{(y-x)(y+x)}$$

$$\text{LCD} : (x+y)(y-x) \checkmark$$

$$= \frac{x(y-x) + x^2}{(x+y)(y-x)}$$

$$= \frac{xy - x^2 + x^2}{(x+y)(y-x)} \checkmark$$

$$= \frac{xy}{(x+y)(y-x)} \checkmark$$

(4)

$$4.2) = \frac{(x+1)(x^2-x+1)}{(x-2)(x+1)} \times \frac{(x-2)(x-2)}{(x^2-x+1)} \checkmark$$

$$= x-2 \checkmark$$

(5)