

Q1. Multiply out the brackets and simplify the following expressions

(a) $(r - 3)(r + 10)$

(b) $(3w - 2)^2$

(c) $(7a - 2)(a + 5)$

$$(r - 3)(r + 10)$$

$$= r^2 + 10r - 3r - 30 \quad \checkmark$$

$$= r^2 + 7r - 30 \quad \checkmark$$

$$b) (3w - 2)^2$$

$$= (3w - 2)(3w - 2)$$

$$= 9w^2 - 6w - 6w + 4 \quad \checkmark$$

$$= 9w^2 - 12w + 4 \quad \checkmark$$

$$c) (7a - 2)(a + 5)$$

$$= 7a^2 + 35a - 2a - 10 \quad \checkmark$$

$$= 7a^2 + 33a - 10 \quad \checkmark$$

$$(d) (x + 1)(4x^2 + 6x - 1)$$

$$= 4x^3 + 6x^2 - x + 4x^2 + 6x - 1$$

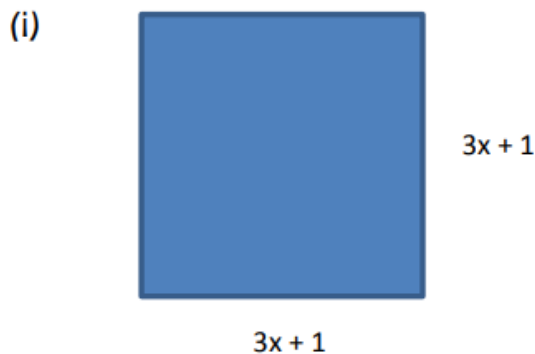
$$= 4x^3 + 10x^2 + 5x - 1 \quad \checkmark$$

$$(e) (2a - 3)(3a^2 - 7a + 4)$$

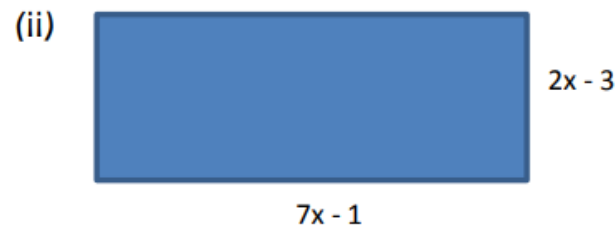
$$= 6a^3 - 14a^2 + 8a - 9a^2 + 21a - 12$$

$$= 6a^3 - 23a^2 + 29a - 12 \quad \checkmark$$

Q2. Write an expression for each area in its simplest form



$$\begin{aligned} A &= (3x + 1)^2 \\ &= (3x + 1)(3x + 1) \checkmark \\ &= 9x^2 + 3x + 3x + 1 \checkmark \\ &= 9x^2 + 6x + 1 \checkmark \end{aligned}$$



$$\begin{aligned} A &= (7x - 1)(2x - 3) \checkmark \\ &= 14x^2 - 21x - 2x + 3 \checkmark \\ &= 14x^2 - 23x + 3 \checkmark \end{aligned}$$