

1. Simplify the following: (9 marks)

(a) $(2b^2)(3b^5)$

(b) $7(m^3)^5$

(c) $(5x^5)^2$

(d) $(3^3)(3^2)^3$

(e) $\frac{h^7}{h^3}$

(f) $(-2)^4(-2)^{12}$

(g) $\frac{12a^4b^5}{3a^3b^2}$

(h) $2m^2 \times 3m^5 \times 5m^3$

(i) $\frac{(2n^2m)^3(3nm)}{6n^3m^2}$

2. Use the **area model** for multiplication to show the product of the following: $(x-3)(2x-1)$ (3 marks)

3. Simplify the following and collect “like” terms: (8 marks)

(a) $7a + 19a$

(b) $5xy - 7xy + 8y - 5y$

(c) $18u + 12a - 16u$

(d) $-5y - 7h + 4y - 12h$

(e) $7(3x - 2)$

(f) $a^2(3a - 4)$

4. Expand and simplify the following (14 marks)

(a) $3(x+5) - (x-4)$

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

(c) $3x(x^2 - 5x + 2) - x(7x^2 - 5x + 2)$

(d) $(2x-5)(3x+4)$

(e) $(2x-5)^2$

(f) $2(x+3)(x-3)$

5. **Solve** the following multi-step equations. Show your work for complete marks. (16 marks)

(a) $10a - 6a = 12$

(b) $4p + 9 = -7$

(c) $\frac{a}{2} - \frac{1}{4} = \frac{7}{8}$

(d) $4x - 6 = 5x + 4$

(e) $7(p - 1) = 35$

(f) $2(a - 5) - 4(2a - 1) = 18$

(g) $\frac{a-2}{3} = 2$

(h) $-\frac{1}{2}(x - 4) = 1$