MPM 1D1 Task – Algebra and Exponents Name:

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) $(-2)^4$

(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 and an algetile illustration to show the product of the following: -x (2x – 4) (3 marks)

3. Simplify the following and explain the difference between the two expressions and their respective answers: (4 marks)

<u>Case 1</u> <u>Case 2</u>

2a + 3a (2a)(3a)

4. 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)

(e) $(3x^2 + 5x - 7) + (8x^2 - 9x + 1)$ (h) $(-x^2 + 6x - 2) - (-3x^2 - 9x + 7)$

5. Expand and simplify the following:

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

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

6. Factor the following: (4 marks)

(a) 4a + 8 (b) 12n – 18 (c) $5x^2$ + 15x