

Name: _____
 Date: _____
 Class: _____

Algebra
 Unit 1
 HW 1-9

1) Show in expanded form (do not simplify): $(2x^2)^4$

$$(2x^2)(2x^2)(2x^2)(2x^2) = 2 \cdot 2 \cdot 2 \cdot 2 \cdot \underbrace{x \cdot x \cdot x \cdot x \cdot x \cdot x}_{\substack{\rightarrow \\ \cdot x \cdot x \cdot x}}$$

2) Simplify the following (if one cannot be simplified, state that):

a) $x^3x^7x^4$

$$x^{3+7+4} = x^{14}$$

b) $z^3a^4z^5a^2$

$$z^8a^6$$

c) $2^3x^5y^7$

$$8x^5y^7$$

3) Simplify: $(-2x^2)^3$

$$(-2)^3(x^2)^3 = -8x^6$$

4) Simplify: $\frac{(3x^2y^3)^4}{9x^3y} = \frac{3^4x^8y^{12}}{9x^3y} = \frac{81x^8y^{12}}{9x^3y} = \boxed{9x^5y^{11}}$

5) In a small stadium, the first row has 7 seats, 2nd row has 11, 3rd row has 15, and so on up to the last row, which is row 15. Which of the following expressions would fit this situation – $2r + 5$ or $4r + 3$ (r is the number of rows)? How many seats would you expect to be in the last row?

$$2(1) + 5 = 7 \checkmark$$

$$2(2) + 5 = 9 \times$$

$$4(1) + 3 = 7 \checkmark$$

$$4(2) + 3 = 11 \checkmark$$

$$4(3) + 3 = 15 \checkmark$$

$$4(15) + 3 = \boxed{63}$$

$$\boxed{4r + 3}$$

6) Simplify: $(x - 6)(x + 8) + (2x - 5)(x - 9)$

$$(x^2 + 8x - 6x - 48) + (2x^2 - 18x - 5x + 45)$$

$$\boxed{3x^2 - 21x - 3}$$

7) Evaluate when $x = -4$.

$$5 - 4x + 2x^2$$

$$5 - 4(-4) + 2(-4)^2$$

$$5 - 4(-4) + 2(16)$$

$$5 + 16 + 32$$

$$\boxed{53}$$

8) Simplify: $(x - y)^2$

$$(x - y)(x - y)$$

$$x^2 - xy - xy + y^2$$

$$\boxed{x^2 - 2xy + y^2}$$