Name: **Key**   Date: _____   Period: _____

Test Review Ch. 5 DAY TWO CYU

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Evaluating expressions with exponents	1 – 4		
Simplifying exponential expressions		5 – 9	
Writing numbers in scientific notation	10 – 11		
Converting numbers from scientific notation	12 - 13		
Operations with scientific notation		14 - 15	
Identifying coefficients	15		
Degree of a term & degree of an expression	15, 16		
Combining like terms	17		
Standard form	17 – 20		
Operations with polynomial expressions	18 - 20		

Evaluate each expression.

1. 2^5 **32**

2. $(-3)^4$ **81**

3. -3^4 **-81**

4. 4^{-3} **$\frac{1}{64}$**

Simplify each exponential expression. Write the result using only positive exponents.

5. $(3x^2)(-5x^9)$ **$-15x^{11}$**

6. $\frac{y^7}{y^2}$ **y^5**

7. $\frac{r^{-8}}{r^{-3}}$ **$\frac{1}{r^5}$**

8. $\left(\frac{x^2 y^3}{x^3 y^{-4}}\right)^2$ **$\frac{y^{14}}{x^2}$**

9. $\frac{6^2 x^{-4} y^{-1}}{6^3 x^{-3} y^7}$ **$\frac{1}{6xy^8}$**

Express each number in scientific notation.

10. 563,000   **5.63×10^5**

11. 0.0000863   **8.63×10^{-5}**

Write each number in standard notation.

12. 1.5×10^{-3} **0.0015**

13. 6.23×10^4 **62,300**

Simplify. Write the answer in standard notation and scientific notation.

14. $(1.2 \times 10^5)(3 \times 10^{-7})$ **0.036 & 3.6×10^{-2}**

15. $\frac{4.2 \times 10^6}{2.1 \times 10^{-5}}$ **2×10^{11}**   **200,000,000,000**

15. Complete the table for the polynomial $4xy^2 + 7xyz + x^3 y - 2$.

Term	Coefficient	Degree of Term
$4xy^2$	4	3
$7xyz$	7	3
x^3y	1	4
-2	___	0

16. State the degree of the polynomial in number 15. **4**

17. Combine like terms and write the expression in standard form. $5x^2 + 4xy - 7x^2 + 11 + 8xy$

$$-2x^2 + 12xy + 11$$

Perform each indicated operation. Write your final answer in standard form.

18. $(8x^3 + 7x^2 + 4x - 7) + (8x^3 - 7x - 6)$

$$16x^3 + 7x^2 - 3x - 13$$

19. $5x^3 + x^2 + 5x - 2 - (8x^2 - 4x^2 + x - 7)$

$$-3x^3 + 5x^2 + 4x + 5$$

20. Subtract $(4x + 2)$ from the sum of $(8x^2 + 7x + 5)$ & $(x^3 - 8)$.

$$x^3 + 8x^2 + 3x - 5$$

Multiply by distributing, FOIL, or Punnett Squares. Write your answer in standard form.

21. $(3x + 7)(x^2 + 5x + 2)$

$$3x^3 + 22x^2 + 41x + 14$$

22. $3x^2(2x^2 - 3x + 7)$

$$6x^4 - 9x^3 + 21x^2$$

23. $(x + 7)(3x - 5)$

$$3x^2 + 16x - 35$$

24. $\left(3x - \frac{1}{5}\right)\left(3x + \frac{1}{5}\right)$

$$9x^2 - \frac{1}{25}$$

25. $(4x - 2)^2$

$$16x^2 - 16x + 4$$

26. $(8x + 3)^2$

$$64x^2 + 48x + 9$$

27. $(x^2 - 9b)(x^2 + 9b)$

$$x^4 - 81b^2$$