

Name: Key Date: _____ Period: _____

Test Review Ch. 5 DAY THREE CYU

☒ Use when you get it right all by yourself

S Use when you did it all by yourself, but made a silly mistake

H Use when you could do it alone with a little help from teacher or peer

G Use when you completed the problem in a group

X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
5.1 Exponent Concepts	1 - 5	6 - 9	10 - 16
5.2 Adding & Subtracting Polynomial Functions	17 - 20, 22, 23	21, 24 - 25	26 - 28
5.3 Multiplying Polynomials		29 - 37	
5.4 Special Products (more multiplying)		38 - 43	44
5.5 Negative Exponents & Scientific Notation	45 - 48	49 - 53	54 - 59

(5.1) Exponents

State the base and the exponent for each expression.

1. 7^9 base: 7 exponent: 9
 2. -5^4 base: 5 exponent: 4

Evaluate each expression.

3. 8^3 512
 4. -6^2 -36
 5. $(3b)^0$ 1

Simplify each expression.

6. $y^2 \cdot y^7$ y^9
 7. $(2x^5)(-3x^6)$ $-6x^{11}$
 8. $(x^4)^2$ x^8
 9. $(3y^6)^4$ $81y^{24}$
 10. $\frac{x^9}{x^4}$ x^5
 11. $\frac{a^5b^4}{ab}$ a^4b^3
 12. $\frac{3x^4y^{10}}{12xy^6}$ $\frac{x^3y^4}{4}$
 13. $5a^7(2a^4)^3$ $40a^{19}$
 14. $(-5a)^0 + 7^0 + 8^0$ 3
 15. $\left(\frac{3x^4}{4y}\right)^3$ $\frac{27x^{12}}{64y^3}$
 16. $\left(\frac{5a^6}{b^3}\right)^2$ $\frac{25a^{12}}{b^6}$

(5.2) Adding & Subtracting Polynomial Functions

Find the degree of each term.

17. $-5x^4y^3$ 7
 18. $35a^5bc^2$ 8

Find the degree of each polynomial.

19. $y^5 + 7x - 8x^4$

5

20. $-14x^2y - 28x^2y^3 - 42x^2y^2$

5

21. The Glass Ridge Skywalk is suspended 4000 feet over the Colorado River at the very edge of the Grand Canyon.

Neglecting air resistance, the height of an object dropped from the Skywalk at time t seconds is given by the polynomial function $P(t) = -16t^2 + 4000$. Find the height of the object at the given times.

t	0 seconds	1 second	3 seconds	5 seconds
$P(t) = -16t^2 + 4000$	4000 ft	3984 ft	3856 ft	3600 ft

Combine like terms in each expression.

22. $6a^2 + 4a + 9a^2$

$15a^2 + 4a$

23. $2s^{14} + 3s^{13} + 12s^{12} - s^{10}$

cannot combine

Add or subtract as indicated.

24. $(3x^2 + 2x + 6) + (5x^2 + x)$

$8x^2 + 3x + 6$

25. $(-5y^2 + 3) - (2y^2 + 4)$

$-7y^2 - 1$

Translate: Perform the indicated operations.

26. Subtract $(3x - y)$ from $(7x - 14y)$.

$4x - 13y$

27. If $P(x) = 9x^2 - 7x + 8$, find the following. $P(6) = ?$

$P(6) = 290; (6, 290)$

28. Find the perimeter of the rectangle if the width is $x^2y + 5$ cm and the length is $2x^2y - 6x + 1$ cm.

$(6x^2y - 12x + 12)$ cm

(5.3) Multiplying Polynomials

Multiply each expression. Write the final answer in standard form.

29. $4(2a + 7)$

$8a + 28$

30. $-7x(x^2 + 5)$

$-7x^3 - 35x$

31. $(3a^3 - 4a + 1)(-2a)$

$-6a^4 + 8a^2 - 2a$

32. $(2x + 2)(x - 7)$

$2x^2 - 12x - 14$

33. $(x - 9)^2$

$x^2 - 18x + 81$

34. $(4a - 1)(a + 7)$

$4a^2 + 27a - 7$

35. $(5x + 2)^2$

$25x^2 + 20x + 4$

36. $(x + 7)(x^3 + 4x - 5)$

$x^4 + 7x^3 + 4x^2 + 23x - 35$

37. $(x^2 + 2x + 4)(x^2 + 2x - 4)$

$x^4 + 4x^3 + 4x^2 - 16$

(5.4) Special Products

Use special products to multiply each of the following. Formulas or FOIL & Punnett Squares.

38. $(x + 7)^2$

$$x^2 + 14x + 49$$

39. $(x + 7)^3$

$$x^3 + 21x^2 + 147x + 343$$

40. $(3x - 7)^2$

$$9x^2 - 42x + 49$$

41. $(5x - 9)^2$

$$25x^2 - 90x + 81$$

42. $(7x + 4)(7x - 4)$

$$49x^2 - 16$$

43. $(a + 2b)(a - 2b)$

$$a^2 - 4b^2$$

Express each as a product of polynomials in x . Then multiply and simplify.

44. Find the area of the square if its side is $(3x - 1)$ meters.

$$(9x^2 - 6x + 1)m^2$$

(5.5) Negative Exponents & Scientific Notation

Simplify each expression to have no negative exponents.

45. 7^{-2}

$$\frac{1}{49}$$

46. $2x^{-4}$

$$\frac{2}{x^4}$$

47. $\left(\frac{1}{5}\right)^{-3}$

$$125$$

48. $2^0 + 2^{-4}$

$$\frac{17}{16}$$

Simplify each expression. Write each answer using positive exponents only.

49. $\frac{x^5}{x^{-3}}$

$$x^8$$

50. $\frac{r^{-3}}{r^{-4}}$

$$r$$

51. $\left(\frac{bc^{-2}}{bc^{-3}}\right)^4$

$$c^4$$

52. $\frac{x^{-4}y^{-6}}{x^2y^7}$

$$\frac{1}{x^6y^{13}}$$

53. $a^{6m}a^{5m}$

$$a^{11m}$$

Write each number in scientific notation.

54. 0.00027

$$2 \times 10^{-4}$$

55. 80,800,000

$$8.08 \times 10^7$$

56. Google.com is an Internet search engine that handles 2,500,000,000 searches every day. Write 2,500,000,000 in scientific notation.

$$2.5 \times 10^9$$

Write each number in standard notation.

57. 8.67×10^5

$$867,000$$

58. 8.6×10^{-4}

$$0.00086$$

59. The volume of the planet Jupiter is 1.43128×10^{15} cubic kilometers. Write this number in standard notation.

$$1,431,280,000,000,000$$

60. Simplify. Express the final answer in standard notation and scientific notation. $(8 \times 10^4)(2 \times 10^{-7})$

$$0.016$$

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

●	●	●	●	●	●	●	
1	2	3	4	5	6	7	8
Basic		Intermediate			Advanced		Solved ALL!