Name: Key Date: _____ Period: _____

5.1 Exponents DAY TWO 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
Power Rule	1, 2, 4, 28, 29, 36	3, 5, 32, 34	9, 10, 37, 38
Power of a Product Rule	1, 2, 4	3, 5	9, 10
Power of a Quotient Rule	6, 11	7, 8, 12, 13, 31, 34, 35	9, 10, 14, 15, 37, 38
Zero Exponent Rule	16, 17, 33	18, 36	19, 20
Product Rule	23, 24, 33	25	26, 27
Evaluating Exponents	21, 33	22	37, 38

Use the power rule and the power of a product rule to simplify each expression.

1. $(y^7)^5$ y^{35}

2. $(ab)^6$ a^6b^6

3. $(4x^6)^2$ $16x^{12}$

4. $(a^4b)^7$ $a^{28}b^7$

5. $(-3x^7yz^2)^3$ $-27x^{21}y^3z^6$

Use the power of a quotient rule to simplify each expression.

6. $\left(\frac{q}{t}\right)^{11}$ $\frac{q^{11}}{t^{11}}$

7. $\left(\frac{xy}{7}\right)^2$ $\frac{x^2y^2}{49}$

8. $\left(\frac{mp}{n}\right)^5$ $\frac{m^5p^5}{n^5}$

9. $\left(\frac{-2xz}{y^5}\right)^2$ $\frac{4x^2z^2}{y^{10}}$

10. $\left(\frac{xy^4}{-3z^3}\right)^3$ $-\frac{x^3y^{12}}{27z^9}$

11. $\frac{y^{10}}{y^9}$ y

12. $\frac{(-6)^{13}}{(-6)^{11}}$ 36

13. $\frac{x^8y^6}{xy^5}$ x^7y

14. $\frac{9a^4b^7}{27ab^2}$ $\frac{a^3b^5}{3}$

15. $\frac{7x^2y^6}{14x^2y^3}$ $\frac{y^3}{2}$

Simplify each expression using the zero exponent rule.

16. 7^0 1

17. $(2x)^0$ 1

18. $-7x^0$ -7

19. $5^0 + y^0$ 2

20. $-3^0 + 4^0$ 0

Simply each expression using the laws of exponents.

21. -9^2 -81

22. $\left(\frac{1}{4}\right)^3$ $\frac{1}{64}$

23. b^4b^2 b^6

24. $a^2a^3a^4$

a^9

25. $(2x^3)(-8x^4)$

$-16x^7$

26. $(a^7b^{12})(a^4b^8)$

$a^{11}b^{20}$

27. $(-2mn^6)(-13m^8n)$

$26m^9n^7$

28. $(z^4)^{10}$

z^{40}

29. $(4ab)^3$

$64a^3b^3$

30. $(-6xyz^3)^2$

$36x^2y^2z^6$

31. $\frac{3x^5}{x^4}$

$3x$

32. $(9xy)^2$

$81x^2y^2$

33. $2^3 + 2^0$

9

34. $\left(\frac{3y^5}{6x^4}\right)^3$

$\frac{y^{15}}{8x^{12}}$

35. $\frac{2x^3y^2z}{xyz}$

$2x^2y$

36. $(5^0)^3 + (y^0)^7$

2

37. $\left(\frac{5x^9}{10y^{11}}\right)^2$

$\frac{x^{18}}{4y^{22}}$

38. $\frac{(2a^5b^3)^4}{-16a^{20}b^7}$

$-b^5$

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 yours elf.