

Name: Key

Date: _____

Period: _____

5.5 Negative Exponents DAY ONE 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
Law of Negative Exponents	1 - 4	5 - 10	11 - 25
All the Laws of Exponents Mixed			26 - 39

Simplify each expression. Write each result using positive exponents only. Show all work for credit.

1. 4^{-3}

$\frac{1}{64}$

2. 6^{-2}

$\frac{1}{36}$

3. $(-3)^{-4}$

$\frac{1}{81}$

4. $(-3)^{-5}$

$-\frac{1}{243}$

5. $7x^{-3}$

$\frac{7}{x^3}$

6. $(7x)^{-3}$

$\frac{1}{343x^3}$

7. $(\frac{1}{2})^{-5}$

32

8. $(\frac{1}{8})^{-2}$

64

9. $(-\frac{1}{4})^{-3}$

-64

10. $(-\frac{1}{8})^{-2}$

64

11. $3^{-1} + 5^{-1}$

$\frac{8}{15}$

12. $4^{-1} + 4^{-2}$

$\frac{5}{16}$

13. $(\frac{1}{p^{-3}})$

p^3

14. $(\frac{1}{q^{-5}})$

q^5

15. $(\frac{p^{-5}}{q^{-4}})^{-2}$

$\frac{q^4}{p^5}$

16. $(\frac{r^{-5}}{s^{-2}})$

$\frac{s^2}{r^5}$

17. $(\frac{x^{-2}}{x})$

$\frac{1}{x^3}$

18. $(\frac{y}{y^{-3}})$

y^4

19. $(\frac{z^{-4}}{z^{-7}})$

z^3

20. $(\frac{x^{-4}}{x^{-1}})$

$\frac{1}{x^3}$

21. $3^{-2} + 3^{-1}$

$\frac{4}{9}$

22. $4^{-2} - 4^{-3}$

$\frac{3}{64}$

23. $(\frac{-1}{p^{-4}})$

- p^4

24. $(\frac{-1}{y^{-6}})$

- y^6

25. $-2^0 - 3^0$

-2

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

$$26. \frac{x^2 x^5}{x^3}$$

$$x^4$$

$$27. \frac{p^2 p}{p^{-1}}$$

$$p^4$$

$$28. \frac{(m^5)^4 m}{m^{10}}$$

$$m^{11}$$

$$29. \frac{p}{p^{-3} p^{-5}}$$

$$p^8$$

$$30. (z^5 x^5)^{-3}$$

$$\frac{1}{x^{15} z^{15}}$$

$$31. \frac{(y^4)^2}{y^{12}}$$

$$\frac{1}{y^4}$$

$$32. \frac{(x^2)^5}{(x^4)^3}$$

$$\frac{1}{x^2}$$

$$33. \frac{27r^4}{3r^6}$$

$$\frac{9}{r^2}$$

$$34. \frac{15a^4}{-15a^5}$$

$$-\frac{1}{a}$$

$$35. \frac{-5x^4 y^5}{15x^4 y^2}$$

$$-\frac{y^3}{3}$$

$$36. (-5a^4 b^{-7})(-a^{-4} b^3)$$

$$\frac{5}{b^4}$$

$$37. (4^{-1} x^5)^{-2}$$

$$\frac{16}{x^{10}}$$

$$38. \left(\frac{a^5 b}{a^7 b^{-2}}\right)^{-3}$$

$$\frac{a^6}{b^9}$$

$$39. \frac{(-3x^2 y^2)^{-2}}{(xyz)^{-2}}$$

$$\frac{z^2}{9x^2 y^2}$$

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.

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

