Name Key Date Class Period

Exponent Rules Practice Quiz

Fill in the table by finding the equivalent expression in the answer bank.

1. $5x^2$	$5 \cdot x \cdot x$
2. $(5x)^2$	$5 \cdot 5 \cdot x \cdot x$
3. $(4xy)^3$	$64x^3y^3$
4. $(3x^4)^2$	$3 \cdot 3 \cdot x^8$
5. $7x \cdot 7x \cdot 7x \cdot 7x$	$(7x)^4$
6. $7x^2y^2x^3y^2$	$7x^5y^4$

Answer Bank

$64x^3y^3$ $5 \cdot x \cdot x$
$5 \cdot 5 \cdot x \cdot x$ $3 \cdot 3 \cdot x^8$
$(7x)^4$ $7x^5y^4$

Put the following expressions in simplest exponential form.

7. $(ab)(ab^2) = a \cdot b \cdot a \cdot b \cdot b = a^2b^3$

8. $9^{-3} = \frac{1}{9^3}$

9. $(4^2)^3$ $(4 \cdot 4)(4 \cdot 4)(4 \cdot 4) = 4^6$
*multiply exponents

10. $(-3x)^0$ Anything to the power of zero is 1!

11. $\frac{t^7}{t^9} = \frac{t \cdot t \cdot t \cdot t \cdot t \cdot t \cdot t}{t \cdot t \cdot t \cdot t \cdot t \cdot t \cdot t \cdot t \cdot t} = \frac{1}{t^2}$
*you have to remember there is still a 1 after you cancel the top.

12. $(x^6)^7$ $= x^{42}$
↳ I could write this out, or I could use power to a power rule...

13. $a^2bc^3a^4c$
$a \cdot a \cdot b \cdot c \cdot c \cdot c \cdot a \cdot a \cdot a \cdot a \cdot c = a^6bc^4$

14. $(j^9)^2 = j^{18}$
*power to a power... multiply exponents.

15. $\frac{a^9b^7}{a^2b^5}$ $a^{9-2} \cdot b^{7-5} = a^7b^2$
*I could use rule & subtract.

16. $3^0 = 1$
*zero power

17. $(xy)^0 = 1$
*zero power

18. r^7r^5 when multiplying with like bases, add exponents $= r^{12}$

19. $(-4x^2y^4z^3)^0 = 1$

20. $\frac{x^2y^6}{x^4y^2} = x^{2-4}y^{6-2} = x^{-2}y^4$
$\frac{1}{x^2} \cdot y^4 = \frac{y^4}{x^2}$

21. $x^{-5} = \frac{1}{x^5}$

22. $(p^4)^8$ p^{32}

23. $q^0 = 1$

24. $x^{11}x^3x^1$ x^{15}
$x = x^1$

25. $\frac{x^3}{x}$ x^2

26. $(3x^2)^{-2}$ $\frac{1}{(3x^2)^2} = \frac{1}{3^2x^4} = \frac{1}{9x^4}$

27. $(10^9)^3 = 10^{27}$

28. $\frac{x^2y^8}{x^9y^{11}} = x^{-7}y^{-3} = \frac{1}{x^7} \cdot \frac{1}{y^3} = \frac{1}{x^7y^3}$