Name: _____ Date: _____ Hour: __Alg 1_____

Unit 1A Day 8: Practice with Exponents

Focus Question: Am I ready for my quiz on exponents tomorrow?

1. Complete the graphic organizer handout
2. Directions for worksheet: Solve each problem and use the key to fill in the answers to the riddles.

Why do bees have sticky hair?

B E C A U S E T H E Y U S E
9 4 1 15 12 16 4 8 10 4 7 12 16 4

H O N E Y C O M B S !
10 13 14 4 7 1 13 11 9 16

What do you call an alligator in a vest?

A N I N V E S T I G A T O R !
15 14 5 14 3 4 16 8 5 6 15 8 13 2

1. $(3x^3y^2)(-6y^5)$

$3 \cdot 6x^{3}y^{2+5}$

$-18x^{3}y^{7}$

2. $(5y^3)(-x^8y^2)$

$-5x^{8}y^{3+2}$

$-5x^{8}y^{5}$

3. $2(3x^2)^3$

$2 \cdot 3^3 \cdot x^{2 \cdot 3}$

$2 \cdot 27 \cdot x^6$

$54x^6$

4. $(7x^2)^3$

$7^3 x^{2 \cdot 3}$

$343x^6$

5. $\left(\frac{8x^2}{2x^2}\right)^2$

$\frac{8^2 x^{2 \cdot 2}}{2^2 x^{2 \cdot 2}}$

$\frac{64x^4}{4x^4} \Rightarrow 16x^{4-4}$

$16x^0$

16

6. $\left(\frac{6x^2}{2y^2}\right)^5$

$\left(\frac{6}{2}\right)^5 \frac{x^{2 \cdot 5}}{y^{2 \cdot 5}}$

$\frac{3^5 x^{10}}{y^{10}}$

$\frac{243x^{10}}{y^{10}}$

7. $\frac{12x^8y^4}{x^3y^5}$

$12x^{8-3}y^{4-5}$

$12x^5y^{-1}$

$\frac{12x^5}{y}$

8. $\frac{2x^3y^8}{4y^2}$

$\frac{1x^3y^6}{2}$

9. $(2^0 \cdot x^{-3})^4$

$1^4 \cdot x^{-3 \cdot 4}$

$1 \cdot x^{-12}$

$\frac{1}{x^{12}}$

A	$\frac{1000x^2}{y}$
B	$\frac{1}{x^{12}}$
C	$-18x^3y^7$
E	$343x^6$
G	$\frac{243x^{10}}{y^{10}}$
H	$\frac{x^2}{y^8}$
I	16
M	$\frac{1}{8x^{15}}$
N	$4x^2y^3$

10. $\frac{x^{12}y^{-3}}{(xy)^5}$

$\frac{x^{12}y^{-3}}{x^5y^5}$

$x^{12-5}\ y^{-3-5}$

$x^7\ y^{-8}$

$\frac{x^7}{y^8}$

11. $\left(\frac{4x^{-5}}{8y^0}\right)^3$

$\left(\frac{1x^{-5}}{2\cdot1}\right)^3$

$\frac{x^{-5\cdot3}}{2^3}$

$\frac{x^{-15}}{8} = \frac{1}{8x^{15}}$

12. $\left(\frac{x^{-8}}{y^{11}}\right)^{-2}$

$\frac{x^{-8\cdot-2}}{y^{11\cdot-2}}$

$\frac{x^{16}}{y^{-22}}$

$x^{16}y^{22}$

O	$\frac{1}{4}$
R	$-5x^8y^3$
S	22.5
T	$\frac{x^3y^6}{2}$
U	$x^{16}y^{22}$
V	$54x^6$
Y	$\frac{12x^5}{y}$

13. $\frac{(2x^3)(x^4)^2}{8x^{11}}$

$\frac{2x^3\cdot x^{4\cdot2}}{8x^{11}}$

$\frac{2x^3x^8}{8x^{11}}$

$\frac{2x^{3+8}}{8x^{11}}$

$\frac{2x^{11}}{8x^{11}} \Rightarrow \frac{1}{4}x^{11-11} \Rightarrow \frac{1}{4}x^0 \Rightarrow \frac{1}{4}$

14. $\frac{8x^2}{2y^{-3}}$

$\frac{8}{2}x^2y^3$

$4x^2y^3$

15. $\frac{(5x^2)^3\cdot(2y)^3}{(xy)^4}$

$\frac{5^3x^{2\cdot3}\cdot2^3\cdot y^3}{x^4y^4}$

$\frac{125x^6\cdot8y^3}{x^4y^4} \Rightarrow \frac{1000x^6y^3}{x^4y^4}$

$(5\cdot2)^3$

$1000x^{6-4}y^{3-4} \Rightarrow 1000x^2y^{-1} \Rightarrow \frac{1000x^2}{y}$

16. The population of the United States is 3.2×10^8. The population of the world is 7.2×10^9. How many times bigger is the population of the world than the United States?

$\frac{7.2\times10^9}{3.2\times10^8}$

2.25×10^1

or 22.5