Name: Key

N1- demonstrate an understanding of powers of integral bases and whole numbers by representing repeated multiplication of powers, using patterns to show that a power with an exponent of zero is equal to one and solving problems involving powers.

- I can represent powers as repeated multiplication and vice versa
- I can represent a power in standard form
- I can evaluate a whole number base to a power of zero
- I can predict if the answer of a power will be positive or negative
- I can solve problems involving powers

Outcome Score:_____/4 Comments:

1. Complete the table below

Power	Base	Exponent	Repeated Multiplication	Standard Form (Evaluate)
10 ⁴	10	4	10 × 10 × 10 × 10	10000
2 ³	2	3	2 x 2 x 2	8
(-2)2	-2	2	(-2) x (-2)	4
-7 ²	7	2	- (7×7)	-49
$-(-2)^3$	-2	3	- (-2)(-2)(-2)	+8
9°	9	0		1
$-(4)^0$	4	0		-1
-2 ⁰	2	0		-1

2. Predict whether the following will be a positive answer or negative answer and provide reasoning.

-(-8)² - why? $(-8)^2$ is + but the extra neg in front makes it (-).

3. Evaluate the following using BEDMAS. THESE CANNOT BE SIMPLIFIED USING EXPONENT LAWS. Please show your work (step by step).

a.
$$(6^2 + 2^3) \div 2$$

 $(36 + 8) \div 2$
 $44 \div 2$
 22

c.
$$(3-5)^2 - (-3)^2$$

 $(-2)^2 - 9$
 $4 - 9$
 -5

N2- demonstrate an understanding of powers of integral bases and whole numbers

- I can evaluate powers using power of a product (various complexities and variables)
- I can evaluate powers using power of a quotient (various complexities and variables)
- I can evaluate powers using power of a product of a power (various complexities and
- I can evaluate powers using power of a power (various complexities and variables)
- I can evaluate powers using quotient of a power (various complexities and variables)
- I can evaluate powers using the combined exponent laws

Outcome Score:_____/4 Comments:

1. Simplify using the product of powers law (Law #1):

a)
$$2^3 \times 2^4$$
 2^7

b)
$$(-3) \times (-3)^2 \times (-3)^3$$
 (-3)

Simplify using the quotient of powers law (Law #2):

a)
$$(-4)^5 \div (-4)^3$$
 $(-4)^2$

b)
$$-2^{12} \div 2^7 - 2^5$$

Simplify using the power of a power law (Law #3):

a)
$$-(5^4)^3$$
 -5^{12}

b)
$$[(-2)^0]^7$$
 (-2)

4. Simplify using the power of a product law (Law #4):

a)
$$[(-3) \times (-2)]^4$$

a)
$$[(-3) \times (-2)]^4$$
 $(-3)^4 \times (-2)^4$

b)
$$[4^2 \times 5^3]^3$$

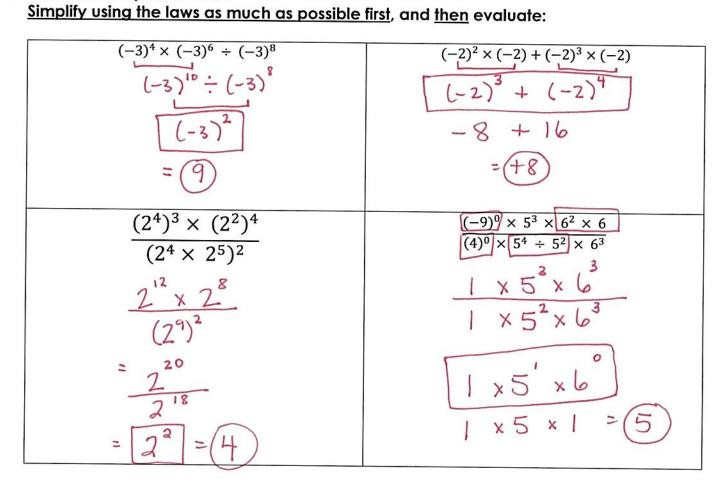
b)
$$[4^2 \times 5^3]^3$$
 4 $\times 5^9$

5. Simplify using the power of a quotient law (Law #5):

a)
$$\left(\frac{9}{2}\right)^3$$
 $\frac{9^3}{2^3}$

b)
$$\left(\frac{16^2}{25^4}\right)^2$$
 $\frac{16^4}{25^8}$

Combined exponent laws:



7. Explain or show two ways that $(3 \times 2)^2$ can be evaluated.

$$(3 \times 2)^{2}$$
 OR $3^{2} \times 2^{2}$
 $(6)^{2}$ 9×4
 36 36
(BEDMAS) (Laws)

8. Identify and correct any errors in these answers. Explain how you think the errors occurred.

a)
$$2^3 \times 4^2 = 8^5$$
 b) $1^2 \times 1^4 - 1^3 = 1^3$ c) $\frac{4^2 \times 4^4}{4^2 \times 4^1} = 4^2$ $\frac{4^4}{4^3}$

Muth, basis and Added exp on tep + exp but then Subtracted the Subtracted the 3-exp. Con only if bases are the same.

Solventially add exp. $\frac{1}{2} \times 1^4 - 1^3 = 1^3$ c) $\frac{4^2 \times 4^4}{4^2 \times 4^1} = 4^2$ $\frac{4^4}{4^2 \times 4^1} = 4^2$ $\frac{$

If you're done early, tell me one thing you have learned about exponents that you didn't get a chance to show me on this test.