Module 1;	Lessons 1-5 Review Topics			
	earned: General statement to apply!)	s (These are princip	oles you need	
Write exposition of the exposi	BASE — Hand a second of the se	pelow. Label the base EXPONENT In even number of time In odd number of time	e and H nes, the (-3)	
will t	e <u>NEGATIVE</u> .	(-3)5		4
WheWhe	n like bases are multiplied, n like bases are divided, th	the exponents are <u> </u>	BTRACT.	× 5 × 3 × 3
A nuTerr	n a power is raised to a power of	$\frac{1 (ONE)}{1}$. 3	xpressed on	X°
Lesson 4: • Any	number raised to the zero p	power is equal to/	(ONE). 3	× ×
Lesson 5: • Nego	tive powers are expressed	as fractions or decin	nals,	
-3 1 -	$\Rightarrow \frac{1}{2^3} \Rightarrow \frac{1}{8}$	or 0.125		

Name ______ Date _____

1. Enter the value of *n* that makes the equation true.

$$7^6 \cdot 7^n = 7^{18}$$



2. Select all expressions equivalent to

A.
$$\left(\frac{1}{81} \cdot 729\right)^{-2}$$

B. 81

C. $3^{8} \cdot 3^{-12}$

D. $\frac{1}{81}$

$$(3^{-4} \cdot 3^{6})^{-2}$$

$$3^{8} \cdot 3^{-12}$$

$$\frac{1}{2^{4}} \rightarrow \frac{1}{2}$$



(-4)(-2)=8

6(-2)=-12

3. Enter the value of n that makes the equation true.

$$(6^n)^3 = 6^{15}$$

$$\left(\left(\right) \right) ^{3}$$

4. Select **all** expressions equivalent to

$$\frac{4^{-8} \cdot 4^7}{4^{-3}}$$

A.
$$\frac{1}{16}$$

c.
$$4^1 \div 4^3$$

$$(D.)$$
 $4^3 \div 4^1$

$$\frac{4^{-1}}{4^{-3}} \Rightarrow \frac{4^{3}}{4^{1}}$$

8+-12

8th grade end of module 1 Assessment

5. Enter the value of n that makes the equation true.

$$\frac{5^6}{5^2} = 5^n$$



6. Enter the value of

$$8^2 \cdot 8^2$$



(4096)

Practice:

The total sales of Amazon have increased significantly since the year 2014. In fact it was reported recently, that sales have doubled each year. It was reported that in 2014 total sales were million.

- a. Assuming that the total sales continues to double each year, for the next four years, determine the total sales for the years 2014, 2015, 2016 and 2017.
- b. Assume the growth in sales continues to double each year from 2010 to 2019. Complete the table below using 2014 as year 1 with million dollars in sales that year.

-1 2 -3 -2 0 2 3 4 5 Year -1 1 6 发之 32 millions

C. Given only the total sales for 2014, and the assumption that the total sales doubles each year, how did you determine the total sales for years 2,3,4,5,and 6?

- 1) Let n be a whole number.
 - a. Use the properties of exponent to write an equivalent expression that is a product of unique primes, each raised to an integer power.

$$\frac{10^{18} \cdot 14^{6}}{70^{6}} = \frac{2^{4} \cdot 18^{18} \cdot 10^{18}}{2^{6} \cdot 5^{18} \cdot 2^{18}} = \frac{2^{4} \cdot 18^{18}}{2^{6} \cdot 5^{18} \cdot 7^{18}} = \frac{2^{4} \cdot 5^{18} \cdot 7^{18}}{2^{6} \cdot 5^{18} \cdot 7^{18}} = \frac{2^{4} \cdot 5^{18} \cdot 7^{18}}{2^{6} \cdot 5^{18} \cdot 7^{18}} = \frac{2^{4} \cdot 5^{18} \cdot 7^{18}}{2^{18} \cdot 5^{12} \cdot 7^{18}} = \frac{2^{18} \cdot 5^{12}}{2^{18} \cdot 5^{12}} = \frac{2^{18} \cdot 5^{12}}{2^{18}} = \frac{2^{18} \cdot 5^{12}}{2^{18}}$$

b. Use the properties of exponents to prove the following identity:

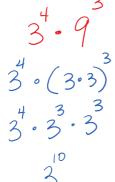
$$\frac{10^{3n} \cdot 14^{n}}{70^{n}} = 2^{3n} \cdot 5^{2n}$$

$$\frac{3n}{70^{n}} = 2^{3n} \cdot 5^{2n}$$

$$\frac{3n}{5^{n}} \cdot \frac{3n}{7^{n}} \cdot \frac{n}{7^{n}} \rightarrow \frac{3n}{7^{n}} \rightarrow \frac{3n}{7^{n}}$$

2)

a. Jessica writes $3^4 \cdot 9^3 = 27^7$. Explain her mistake.



b. Find m so that the number sentence below is true:

$$3^{4} \cdot 9^{2} = 3^{4} \cdot 3^{m} = 3^{8}$$

$$3^{4} \cdot 3^{m} = 3^{8}$$



c). You write $8^3 \cdot 8^{-9} = 8^{-6}$. Kyle challenges you, "Prove it!" Show directly why your answer is correct without referencing the laws of exponents for integers; in other words, $x^a \cdot x^b = x^{a+b}$ for positive numbers x and integers a and b. (YOU CAN'T TELL ME 3 + -8 = -6...SO THINK ABOUT MOVING NEGATIVE EXPONENT TO MAKE IT POSITIVE – DON'T USE MULTIPLICATION RULE FOR THIS ONE)