## Pre-Calculus Worksheet

## NEEDED SKILLS for Exponents

Períod: \_\_\_\_

NOTE: For the RULES, let a and b be real numbers and m and n positive integers.

DAY ONE: Simplify. Write your final answer with positive exponents ONLY.

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Rule:	1. \frac{1}{-3}	2. $m^{-12}$	3. $2y^{-5}$	4. $\frac{5}{10^{-3}}$	5. $-12a^4b^{-7}$
$a^{-m} = \frac{1}{a^m}$	$a^{-3}$			$4. \frac{4}{4r^{-3}}$	
AND					
$\frac{1}{a} = a^m$					
$\frac{1}{a^{-m}} = a^m$					

DAY TWO: Simplify. Write your final answer with positive exponents ONLY.

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Rule:	1. $z^2 \cdot z^3$	2. $2a^9 \cdot 5a^{-2}$	3.	$\begin{array}{ c c c } 4. & & \\ -2x^{-1}y^{-4} \cdot 3x^2y & & \end{array}$	<b>5.</b> $z^{n+2} \cdot z^{n-2}$		
$a^m \cdot a^n = a^{m+n}$			$(-4t^{-3})(5t^{-5})$	$-2x^{-1}y^{-4} \cdot 3x^2y$			

DAY THREE: Simplify. Write your final answer with positive exponents ONLY.

Rule: $ (ab)^m = a^m b^m $	1. $(xy)^{-3}$	$\begin{array}{c} 3. \\ \left(-6x\right)^2 \cdot \left(2xy\right)^{-2} \end{array}$	5.
$(ab) = a^m b^m$		$(-6x) \cdot (2xy)$	$(5ac) \cdot (3c)$

**DAY FOUR:** Simplify. Write your final answer with positive exponents ONLY.

Rule: $ \left(a^m\right)^n = a^{mn}$	1. $(4s^3)^4$	$2. \left(5x^2y^{-4}\right)^{-2}$	3. $\left(-2c^{-3}d^4\right)^3$	$(-x^2y)^3 \cdot (x^{-5}y)$	$5. \left(9a^2\right)^{-2} \left(-3ab^2\right)^3$

DAY FIVE: Simplify. Write your final answer with positive exponents ONLY.

DAY LIVE:	Simplify. Write yo	our Tinai answer wii	n positive exponen	IS UNLY.	
Rule: $\frac{a^m}{a} = a^{m-n}$	1. $\frac{x^{-3}}{x^7}$	2. $\frac{5a^{13}}{2a^4}$	3. $\frac{-4a^2}{a^{-10}}$	$4. \ \frac{s^{-2}t^{-3}}{4s^{-1}t^5}$	$ \left(\frac{a^4}{a^4}\right) \cdot 10a^{-7}b^2 $
$\frac{1}{a^n} = a$					$\left(\frac{\overline{b^{-6}}}{b^{-6}}\right)^{\cdot 10a-b}$

DAY SIX: Simplify. Write your final answer with positive exponents ONLY.

Rule: $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$	1. $\left(\frac{3x}{4}\right)^2$	$2. \left(\frac{r^{-5}}{3s^2}\right)^4$	3. $ \left(\frac{7t^{-2}}{st^{-3}}\right)^2 \cdot \frac{t^5}{s^{-6}} $	$\left(-\frac{v^{-2}}{4w}\right)^{-3} \left(\frac{w^2}{v^{-1}}\right)^2$	$5. \left(\frac{12x^4}{3x^{-2}}\right)^3$

DAY SEVEN: Simplify. Write your final answer with positive exponents ONLY.

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Rule: $a^0 = 1$	1. $-6x^0$	$2.$ $2a^3b^{-6} \cdot 5a^0b^2$	$3. \left(\frac{100x^3y}{13z^{-5}}\right)^0$	4. $(2m^4n)^2(-5^0mn^{-1})$	$5. \ \frac{10a^{-13}}{-20a^{10}a^0}$

DAY EIGHT: Simplify. Write your final answer with positive exponents ONLY.

OTTO CESTITION ON THE PROPERTY.	VIIIC Your Final answer Will	positive expension of ter.	
1. $(7x^2yz^{-4})(3x^{-3}y)$	2. $(5t)^{-2}(-2t^3)^3$	3. $\left(-4x^{-5}z^2\right)^{-2}\left(8x^{-8}\right)$	4. $\left(\frac{12m^{-5}n}{-56m^{10}n^2}\right)^0$
			( 33.11 11 )

DAY NINE: Simplify. Write your final answer with positive exponents ONLY.

$1.  3t^n \cdot t^{-2} \cdot 8t^n$	2. $(6c^2)(-3c^{-4})^2$	3. $-8b^3(-3b^2+b-6)$	4. $2rs^2(-r^3s^2)^3 + (3r^5s^4)^2$