

## Welcome Back!

1. Staple rubric on top of project.
2. Turn into basket

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
<b>Monday</b> Date: <u>2/26</u> Topic: <u>Exponential Project Due!</u>	0 1 2	
<b>Tuesday</b> Date: _____ Topic: _____	0 1 2	
<b>Wednesday</b> Date: _____ Topic: _____	0 1 2	
<b>Thursday</b> Date: _____ Topic: _____	0 1 2	
<b>Friday</b>		

## Class Plan:

1. Turn in projects  
-Plan for Tuesday 2-27

2. Return Study Guides

3. Worktime Options:

a) *Finish* Exponential Project

b) *Add* review problems to  
your study guide.

Unit Test: Friday, March 2nd



**Plan for Tuesday 2-27** 11<sup>th</sup> = ACT

Knox: (Room **N135**) Last names:

**A - ELLIS**

Paulson: (Room **E122**) Last names:

**ERDRICH - KYLLONEN**

Mohamud: (Room **207**) Last names:

**LACOURSIERE - ROMERO-R**

Kohnert: (Room **E102**) Last names:

**RUSSELL - ZWACK-LAFAURIE**

**B****Recall the Properties!****INDEX LAWS****Product Property of Exponents**

$$a^m \cdot a^n = a^{m+n}$$
 ADD

**Quotient Property of Exponents**

$$\frac{a^m}{a^n} = a^{m-n}$$
 SUBTR.

**Definition of Negative Exponents**

$$a^{-n} = \frac{1}{a^n} \quad \text{or} \quad \left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$$

**Zero Exponents** FLIP

$$a^0 = 1$$

**Power of a Power Property**

$$(a^m)^n = a^{mn}$$
 MULTIPLY

**Power of a Product Property**

$$(ab)^m = a^m b^m$$

**Power of a Quotient Property**

$$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

**\*\*\*Important:**

Recognize how connected the properties are.

## Multiplication Rule

$$b^m \cdot b^n = b^{m+n}$$

Multiplication Property. Simplify and add problems to your study guide.

1)  $2 \cdot 2^4$

2)  $4n^4 \cdot n^3$

$$4n^7$$

## Multiplication Rule

$$b^m \cdot b^n = b^{m+n}$$

Multiplication Property. Simplify and add problems to your study guide.

$$3) 4u^2v^4 \cdot 3v^4$$

$$4) -4yx^2 \cdot -4y$$

## Power Rule

$$\left(b^m\right)^n = b^{m \cdot n}$$

Power Property. Simplify and add problems to your study guide.

5)  $\left(r^4\right)^4$

6)  $\left(4^3\right)^3$

## Power Rule

$$\left(b^m\right)^n = b^{m \cdot n}$$

Power Property. Simplify and add problems to your study guide.

7)  $(2yx^2)^2$

8)  $(4u^4v^4)^4$



## Division Rule

$$\frac{b^m}{b^n} = b^{m-n}$$

Division Property. Simplify and add problems to your study guide.

9)  $\frac{4^4}{4}$

10)  $\frac{p}{2p^3}$

## Division Rule

$$\frac{b^m}{b^n} = b^{m-n}$$

Division Property. Simplify and add problems to your study guide.

$$11) -\frac{2x^3y^2}{y^2}$$

$$12) \frac{-3xy^4}{-4x^3y^3}$$

## Zero Rule

$$b^0 = \boxed{1}$$

Zero Property. Simplify and add problems to your study guide.

$$13) 3^0 \cdot 3^0$$

$$14) 3b^0 \cdot b^2 \cdot b$$

## Zero Rule

$$b^0 = 1$$

Zero Property. Simplify and add problems to your study guide.

$$15) (3v^2)^0$$

$$16) \frac{4x^2}{2x^0}$$

## Negative Rule

$$\frac{1}{b^m} = b^{-m} \quad \& \quad \frac{1}{b^{-m}} = b^m$$

Negative Property. Simplify and add problems to your study guide.

17)  $4^{-4} \cdot 4^{-3}$

18)  $3n \cdot 3n^{-2}$

## Negative Rule

$$\frac{1}{b^m} = b^{-m} \quad \& \quad \frac{1}{b^{-m}} = b^m$$

Negative Property. Simplify and add problems to your study guide.

19)  $(4k^{-2})^3$

20)  $\frac{2k^{-3}}{k}$

### Examples with multiple properties

MULTIPLE PROPERTIES. Simplify and add AT LEAST ONE problem to your study guide.

$$21) 2 \cdot (2^{-3})^4 \cdot 2^3$$

### Examples with multiple properties

MULTIPLE PROPERTIES. Simplify and add AT LEAST ONE problem to your study guide.

$$21) 2 \cdot (2^{-3})^4 \cdot 2^3$$

$$\begin{aligned} &= 2 \cdot 2^{-12} \cdot 2^3 \\ &= 2^{-8} = \frac{1}{2^8} \end{aligned}$$



### Examples with multiple properties

MULTIPLE PROPERTIES. Simplify and add AT LEAST ONE problem to your study guide.

$$22) \frac{(2^{-1})^4}{2^3}$$

### Examples with multiple properties

MULTIPLE PROPERTIES. Simplify and add AT LEAST ONE problem to your study guide.

$$22) \frac{(2^{-1})^4}{2^3} = \frac{2^{-4}}{2^3} = 2^{-7} = \frac{1}{2^7}$$

$$-4 - 3 = -7$$

### Examples with multiple properties

MULTIPLE PROPERTIES. Simplify and add AT LEAST ONE problem to your study guide.

$$23) (-2n^4)^2 \cdot 2n^4 \cdot -2n$$

### Examples with multiple properties

MULTIPLE PROPERTIES. Simplify and add AT LEAST ONE problem to your study guide.

$$23) (-2n^4)^2 \cdot 2n^4 \cdot -2n$$

$$\begin{aligned} & (-2n^4)(-2n^4) \cdot 2n^4 \cdot -2n \\ & = 4n^8 \cdot -4n^5 \\ & = \boxed{-16n^{13}} \end{aligned}$$

### Examples with multiple properties

MULTIPLE PROPERTIES. Simplify and add AT LEAST ONE problem to your study guide.

$$24) \frac{-3n^0 \cdot -2n^2}{-n^0}$$

### Examples with multiple properties

MULTIPLE PROPERTIES. Simplify and add AT LEAST ONE problem to your study guide.

$$24) \frac{-3n^0 \cdot -2n^2}{-n^0}$$

$$\begin{aligned} \frac{-3 \cdot -2n^2}{-1} &= \frac{6n^2}{-1} \\ &= \boxed{-6n^2} \end{aligned}$$

## Solutions :)

1)  $2^5$

5)  $r^{16}$

9)  $4^3$

13) 1

17)  $\frac{1}{4^7}$

21)  $\frac{1}{2^8}$

2)  $4n^7$

6)  $4^9$

10)  $\frac{1}{2p^2}$

14)  $3b^3$

18)  $\frac{9}{n}$

22)  $\frac{1}{2^7}$

3)  $12u^2v^8$

7)  $4y^2x^4$

11)  $-2x^3$

15) 1

19)  $\frac{64}{k^6}$

23)  $-16n^{13}$

4)  $16y^2x^2$

8)  $256u^{16}v^{16}$

12)  $\frac{3y}{4x^2}$

16)  $2x^2$

20)  $\frac{2}{k^4}$

24)  $-6n^2$

## **Exercises:**

- 1) Use study guide and review page to prepare for unit test (3-2).
- 2) Finish project if you haven't already.