

## Warm-Up

October 14, 2015

1. Explain why  $3^4$  and  $4^3$  are not the same.

$$3 \times 3 \times 3 \times 3 = 81$$

$$4 \times 4 \times 4 = 64$$

2. Do brackets matter? Evaluate each of the following to answer this question.

$$(-2)^4$$

$$16$$

$$-(2)^4$$

$$-16$$

$$-2^4$$

$$-16$$

$$-(-2)^4$$

$$-16$$

# Homework Questions???

Homework Check...





**Section 2.2**  
**Powers of Ten and**  
**Zero Exponents**

# Use 3 as your base

Exponent	Power	Repeated Multiplication	Standard Form
4	$3^4$	$3 \times 3 \times 3 \times 3$	81 $\begin{array}{l} \text{)} \\ \text{)} \\ \text{)} \\ \text{)} \end{array} \begin{array}{l} :3 \\ :3 \\ :3 \\ :3 \end{array}$
3	$3^3$	$3 \times 3 \times 3$	27 $\begin{array}{l} \text{)} \\ \text{)} \\ \text{)} \end{array} \begin{array}{l} :3 \\ :3 \\ :3 \end{array}$
2	$3^2$	$3 \times 3$	9 $\begin{array}{l} \text{)} \\ \text{)} \end{array} \begin{array}{l} :3 \\ :3 \end{array}$
1	$3^1$	3	3 $\begin{array}{l} \text{)} \\ \text{)} \end{array} \begin{array}{l} :3 \\ :3 \end{array}$
0	$3^0$		1 $\begin{array}{l} \text{)} \\ \text{)} \end{array} \begin{array}{l} :3 \\ :3 \end{array}$

Number in Words	Standard Form	Power
One billion	1 000 000 000	$10^9$
One hundred million	100 000 000	$10^8$
Ten million	10 000 000	$10^7$
One million	1 000 000	$10^6$
One hundred thousand	100 000	$10^5$
Ten thousand	10 000	$10^4$
One thousand	1 000	$10^3$
One hundred	100	$10^2$
Ten	10	$10^1$
One	1	$10^0$



## Zero Exponent Law

(positive/negative)

A power with an integer base, other than 0, and an exponent of 0 is equal to 1

Ex.

$$52^0 = 1$$

$$628^0 = 1$$

$$10^0 = 1$$

$$(-5)^0 = 1$$

$$-(-25)^0$$

$$-1$$

Try this

Evaluate each expression

a)  $5^0$

|

b)  $-(5)^0$

- |

c)  $(-5)^0$

|

d)  $-5^0$

- |

three thousand two hundred sixty two

standard  
form

3262

Expanded  
form

$$3000 + 200 + 60 + 2$$

$$3 \times 1000$$

↓

Power of  
10

$$3 \times 10^3 + 2 \times 10^2 + 6 \times 10^1 + 2 \times 10^0$$



Write 96 713 as a power of 10

Expanded form

$$90\,000 + 6\,000 + 700 + 10 + 3$$

Power of

10

$$9 \times 10^4 + 6 \times 10^3 + 7 \times 10^2 + 1 \times 10^1 + 3 \times 10^0$$

Write using powers of 10

a) 3 528

$$3000 + 500 + 20 + 8$$

$$3 \times 10^3 + 5 \times 10^2 + 2 \times 10^1 + 8 \times 10^0$$

b) 600

$$6 \times 10^2$$

# Evaluate

$$a) \quad -(-5)^0$$

-1

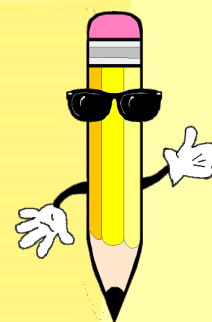
$$b) \quad -326^0$$

-1

$$c) \quad (-51)^0$$

1

# 205 309



Expanded  
Form

$$200\,000 + 5\,000 + 300 + 9$$

Power  
of 10

$$2 \times 10^5 + 5 \times 10^3 + 3 \times 10^2 + 9 \times 10^0$$

Write in standard form

$$3 \times 10^2 + 6 \times 10^4 + 3 \times 10^0 + 8 \times 10^6$$

300                      6 0000

8 060 303

# Homework

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#4, 5 > chart  
Power | Evaluate

6, 8, 9 [a, c, e], 10 all

