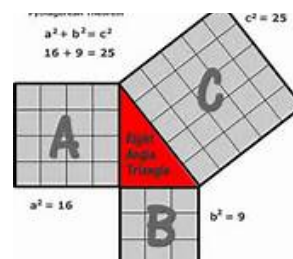


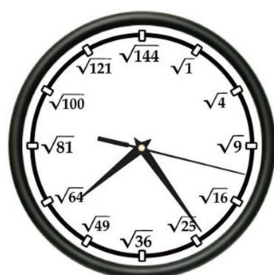


Math 8
Oct. 25, 2017

Before we start
Unit 1:



Square Roots & Pythagorean Theorem



2^3



Exponents

★ Exponents are shorthand for repeated multiplication:
 Ex) $(5)(5) = 5^2$, $(5)(5)(5) = 5^3$.

★ The "exponent" stands for however many times the term is being multiplied.

Exponent

5³

(3 times) $5 \times 5 \times 5 = 125$

★ The term that's being multiplied is called the "base".

Base → 5³

Given 4^3 , 4 is called the base and 3 is the exponent.

★ Together, 4^3 is called a **power**.



4^3 means $4 \times 4 \times 4 = 64$.

$4 \times 4 \times 4$ is the expanded form. (repeated \times)

64 is the standard form. (answer off calculator)

4^3 is the exponential form (or the power).

The base is what you are multiplying by, and the exponent tells you how many times to multiply it.

Exponential	Expanded	Standard
2^5 means	<u>$2 \times 2 \times 2 \times 2 \times 2$</u>	= <u>32</u>
<u>3^3</u> means	$3 \times 3 \times 3$	= <u>27</u>
8^4 means	<u>$8 \times 8 \times 8 \times 8$</u>	= 4096

Check $\left\{ \begin{array}{l} 8 \times 8 = 64 \\ 8 \times 8 \times 8 = 512 \\ 8 \times 8 \times 8 \times 8 = 4096 \end{array} \right.$

Evaluate the following (Show all work)

$$\begin{aligned}
 & 2 \times 2 \times 2 \times 2 \times 2 \\
 = & \underbrace{2 \times 2}_4 \times 2 \times 2 \times 2 \\
 = & \underbrace{4 \times 2}_8 \times 2 \times 2 \\
 = & \underbrace{8 \times 2}_{16} \times 2 \\
 = & \underbrace{16 \times 2}_{32}
 \end{aligned}$$

$$6 \times 6 \times 6 \times 6$$

base 6

exponent 4

power 6^4



Calculator Button



x^y

or

\wedge

or

y^x

or

x^{\square}

So for 5^3

$$5 \ x^y \ 3 =$$

$$5 \ \wedge \ 3$$

$$5 \ y^x \ 3$$

$$= 125$$

x^2 is a special button that squares a #

$3 \ \square^2 = 9$ (means times the number by itself)
 or $3 \ \square^2 \ 2 = 9$

$$3^2 = 9$$

x^2

$$8^4 = 4096$$

$$4^3 = 64$$

Homework

Calculate

	Power *	Base	Exponent	* Exponential Form	Expanded Form	Standard Form
a)	7³	7	3	7³	7 × 7 × 7	343
b)		9	4			
c)				6 ²		
d)					4 × 4 × 4 × 4 × 4	
e)	3 ⁵					
f)		10	4			
g)	5 ⁴					
h)	4 ⁵					
i)					8 × 8 × 8	
j)				3 ⁹		
k)		8	2			
l)					5 × 5 × 5 × 5 × 5 × 5	
m)	3 ³					
n)		11	2			
o)		6				1296
p)			5			32

$$\begin{array}{l}
 6^1 \\
 6^2 \\
 6^3 \\
 6^4 \\
 6^5
 \end{array}
 \begin{array}{l}
 b = 6 \\
 6 \times 6 = 36 \\
 6 \times 6 \times 6 = 196 \\
 6 \times 6 \times 6 \times 6 = \cdot 6
 \end{array}$$

Attachments

WS 2.3 Powers.doc