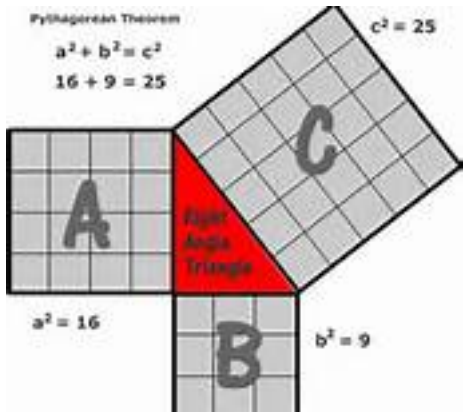


Math 8

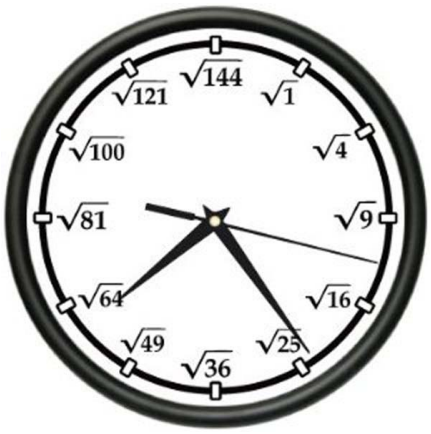
Nov. 4, 2026

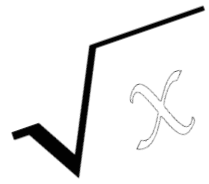


New Unit

Exponents & Square Roots

2^3







Exponents

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

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

Exponent ▲ 3

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

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

Base ► 5^3

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

Together, 4^3 is called a power.

Power

b^3

exponent

base

4^3 means 4 x 4 x 4 = 64.

4 x 4 x 4 is the expanded form. (repeated X)

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.

(Power)

Exponential	Expanded	Standard
2^5 mean	2·2·2·2·2	32 = 32
3^3 3^3 means	3 x 3 x 3	27 = 27
8^4 means	8x8x8x8	4096

Evaluate the following(Show all work)

2 x 2 × 2 x 2 x 2

4 x 2 x 2 x 2

8 x 2 x 2

16 x 2

32

Fill in the blanks

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

base 6

exponent 4

power 6^4

Standard 1296



Calculator Button



x^y or ^ or y^x or

So for 5^3

5 x^y 3 5 ^ 3 5 y^x 3

= 125

x^2 is a special button that squares a #
(means times the number by itself)

3^2 $3 \times 3 = 9$ x^2

3 x^2 =

$8^4 = 4096$

$4^3 = 4 \times 4 \times 4$

16 x 4

64

8 ^ 4

8x8x8x8

8 x^y 4

	Power	Base	Exponent	Exponential Form	Expanded Form	Standard Form
a)			5			16 807
b)		9				6561

a) $B^{\square} = 16\,807$

Base = 7

b) $9^{\square} = 6561$

exponent = 4

$1^5 = 1$

$2^5 = 32$

$3^5 = 243$

$4^5 = 1024$

$5^5 = 3125$

$6^5 = 7776$

$7^5 = 16\,807$

$9^1 = 9$

$9^2 = 81$

$9^3 = 729$

$9^4 = 6561$

Homework

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