

9/11 Order of Operations

Tuesday, September 11, 2012
10:49 AM

"PEMDAS"

- ① P: (parenthesis) or absolute value
- ② E: exponents or sq. root
- ③ $\left. \begin{matrix} M \\ D \end{matrix} \right\}$: mult. $\left. \begin{matrix} > \\ \text{div.} \end{matrix} \right\}$ "left to right"
- ④ $\left. \begin{matrix} A \\ S \end{matrix} \right\}$: add subtract $>$ "left to right"

Exponents (powers)

EXS:

① $2^3 \Rightarrow 2 \cdot 2 \cdot 2 = 8$
base
#

② $3^4 \Rightarrow \underbrace{3 \cdot 3}_9 \cdot \underbrace{3 \cdot 3}_9 = 81$

$x^0 = 1$ KNOW!

EX: $5^0 = 1$ $16^0 = 1$ $(-3)^0 = 1$

Negative Exponents

$$x^{-n} (\text{integer}) = \frac{1}{x^n}$$

EXS:

① $5^{-2} \Rightarrow \frac{1}{5^2} = \frac{1}{25}$

② $2^{-3} = \frac{1}{2^3} \Rightarrow \frac{1}{8}$

③ $4^{-3} \Rightarrow \frac{1}{4^3} = \frac{1}{4 \cdot 4 \cdot 4} = \frac{1}{64}$

④ $2^{-4} = \frac{1}{2^4} = \frac{1}{16}$

EX: $10^{-4} = \frac{1}{10^4}$

EX: $10^{-8} = \frac{1}{10^8}$

$$\textcircled{5} m^{-4} \Rightarrow \frac{1}{m^4} \quad \textcircled{6} w^{-8} \Rightarrow \frac{1}{w^8}$$

$$\textcircled{7} \frac{1}{5^{-2}} \Rightarrow \frac{5^2}{1} = 5^2 = 25$$

$$\textcircled{8} \frac{1}{n^{-3}} \Rightarrow \frac{n^3}{1} = n^3 \quad \textcircled{9} \frac{1}{m^{-3}} \Rightarrow \frac{1}{m^3}$$