Order of Operations

Please **E**xcuse **M**y **D**ear **A**unt **S**ally (**PEMDAS**)

First do what is "inside **P**arentheses", or other grouping symbols, ( ), [ ], { }, | |, /

IF | |, absolute value, evaluate the | | next.

If / work top & bottom separately & do the division last.

Then work with the **E**xponential parts or Roots

Multiplication and **D**ivision are worked next from LEFT to RIGHT!

Lastly **A**ddition & **S**ubtraction is performed, again from LEFT to RIGHT!

Examples:

- $2^2 \rightarrow 2*2 \rightarrow 4$
- $(2)^2 \rightarrow (2)*(2) \rightarrow 4$
- $-2^2 \rightarrow -2*2 \rightarrow -4$ (Exponent before Subtraction)
- $(-2)^2 \rightarrow -2*-2 \rightarrow 4$ (Parentheses 1st)

- $8-2+15 \xrightarrow{\text{Addition \& Subtraction from Left to Right}} 6+15 \xrightarrow{\text{Addition}} 21$

- $3*5-7+6 \div 2*3 \xrightarrow{\text{1st is Multiplication 3*5}} 15-7+6 \div 2*3 \xrightarrow{\text{Now division 6} \div 2}$

  $15-7+3*3 \xrightarrow{\text{Next is Multiplication 3*3}} 15-7+9 \xrightarrow{\text{Now Subtract 15 - 7}} 8+9$

  $\xrightarrow{\text{Finally we add 8+9}} 17$

- $2*15 \div 6*2+3 \xrightarrow{\text{Multiplication \& Division from Left to Right}} 30 \div 6*2+3$

  $\xrightarrow{\text{Multiplication \& Division from Left to Right}} 5*2+3 \xrightarrow{\text{Multiplication}}$

  $10+3 \xrightarrow{\text{Addition}} 13$

- $8*\left[2^2+(6-1)*2\right]-50*2 \xrightarrow{\text{Inside Inner Parentheses do Subtraction}}$

  $8*\left[2^2+(5)*2\right]-50*2 \xrightarrow{\text{Inside Parentheses do Exponents}} 8*\left[4+(5)*2\right]-50*2$

  $\xrightarrow{\text{Inside Parentheses do Multiplication}} 8*\left[4+10\right]-50*2 \xrightarrow{\text{Inside Parentheses do Addition}}$

  $8*\left[14\right]-50*2 \xrightarrow{\text{Multiplication from Left to Right}} 112-100 \xrightarrow{\text{Subtraction}} 12$

- $\dfrac{7(9-6)+3}{3^2-3} \xrightarrow{\text{Parentheses}} \dfrac{7*9-7*6+3}{3^2-3} \xrightarrow[\text{Exponents}]{\text{Multiplication}} \dfrac{63-42+3}{3*3-3}$

  $\xrightarrow[\text{Multiplication}]{\text{Subtraction}} \dfrac{21+3}{9-3} \xrightarrow[\text{Subtraction}]{\text{Addition}} \dfrac{24}{6} \xrightarrow{\text{Division}} 4$