

January 11, 2017

Order of Operations

1) Clear Grouping Symbols.
 (), [], { }, | a |, \sqrt{a} , $\frac{a}{b}$
 | 3-8 | $\sqrt[3]{8}$ $\frac{1}{x^2} = x^{-2}$
 | -5 | 2

2) Evaluate Exponents.
 $5^3 = 5 \cdot 5 \cdot 5 = 125$

3) Multiplication or Division
 which ever comes first
 working from left to right
 $(6 \div 3) \cdot 2 + 2$
 $(2 \cdot 2) + 2$
 $4 + 2$
 6

4) Addition or subtraction
 $L \rightarrow R$

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$$3) \frac{2}{9} \left(\frac{9}{2} t \right)$$

$$\left(\frac{2}{9} \rightarrow \frac{9}{2} \right) \cdot \frac{t}{1}$$

$$\frac{18}{18} \cdot \frac{t}{1}$$

$$1 \cdot \frac{t}{1} = t$$

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$$4) 3x + 6(2x - 3) = 4 - 7x$$

$$3x + 6 \cdot 2x + 6 \cdot (-3) = 4 - 7x$$

$$3x + 12x - 18 = 4 - 7x$$

$$15x - 18 = 4 - 7x$$

$$+ 7x \quad + 18 \quad + 18 + 7x$$

$$22x = 22$$

$$\frac{22x}{22} = \frac{22}{22}$$

$$x = 1$$

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What is a "like" term?

- Same Variable
- Same Exponent

e.g. $-6x^3 + 5x^3$

$$(-6 + 5)x^3$$

$$-1x^3$$

$$-x^3$$

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$$5) \frac{3}{1} \left(\frac{5(y-4)}{3} = 2y - 2 \right)$$

LCD: 3

$$\frac{3}{1} \left(\frac{5y-20}{3} = 2y - 2 \right)$$

$$5y - 20 = 6y - 6$$

$$-5y + 6 \quad -5y + 6$$

$$-14 = y$$

$$5y - 6y = -6 + 20$$

$$-y = 14$$

$$\frac{-y}{-1} = \frac{14}{-1}$$

$$y = -14$$

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$$6) \frac{6x^6}{x^2} = \frac{6}{1} \cdot \frac{x \cdot x \cdot x \cdot x \cdot x \cdot x}{x \cdot x}$$

$$= 6x^4$$

- $(-2)^2 = (-2) \cdot (-2) = 4$
- $(-2)^2 = (-1) \cdot 2^2$
 $= (-1) \cdot 2 \cdot 2$
 $= -2 \cdot 2$
 $= -4$

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$$1 \Rightarrow 3^{-2} = \frac{1}{3^2} = \frac{1}{9}$$

Negative Exponent Rule

$$\textcircled{1} \frac{a^{-n}}{1} = \frac{1}{a^{+n}}$$

$$\textcircled{2} \frac{1}{a^n} = \frac{a^{+n}}{1} = a^n$$

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