

Notes:

- 1) Addition
- 2) Subtraction
- 3) Multiplication
- 4) Division
- 5) Power
- 6) Power
- 7) Product

$x + 3 = 0$   
 $\quad - 3 \quad - 3$   


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 $x = -3$

$\times \rightarrow$  Product  
 $\div \rightarrow$  Quotient  
 $+$   $\rightarrow$  Sum  
 $-$   $\rightarrow$  Difference

Product  
Power  
Powers

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Example:

$$\begin{array}{r} 5x - 3 = 12 \\ + 3 \quad + 3 \\ \hline 5x = 15 \end{array}$$

Add Prop of Eq.

$$\frac{5x}{5} = \frac{15}{5}$$

Div Prop of Eq.

$$x = 3$$

$$\begin{array}{r} \frac{2}{3}M + 5 = 11 \\ - 5 \quad - 5 \\ \hline \frac{2}{3}M = 6 \end{array}$$

Subtraction Property

$$\frac{2}{3} \cdot \frac{3}{2}M = 6 \cdot \frac{3}{2}$$

Multiplication Property

$$M = 9$$

Power of a Product

$$\frac{6 \cdot 3}{3 \cdot 3} = \frac{18}{2} = 9$$

$$(xy)^a = x^a y^a$$

$$(xy)^2 = x^2 y^2$$

Power of Power

$$(x^a)^b = x^{ab} \quad (x^2)^4 = x^{2 \cdot 4} = x^8$$

Product of Powers

$$x^a \cdot x^b = x^{a+b}$$

$$x^4 \cdot x^2 = x^{4+2} = x^6$$

$$(x^2)^4 = (x \cdot x)^4 = (x \cdot x)(x \cdot x)(x \cdot x)(x \cdot x)$$

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