

# M10 - 0.0 - Remember

# TOV

**Measurement**  
Make Units Cancel!      Attach Prefix to the base unit!

<u>Distance</u>	<u>Mass/Distance</u>	<u>Volume</u>
1in = 2.54cm	1kg = 2.2lb	1L = 1000L
1ft = 12in	1yd = 3ft	1gal = 160oz
1m = 3.3ft	1mi = 1760yd	1gal = 10lbs
	1lb = 16oz	

1cm<sup>3</sup> = 1mL      **Water**  
1kg = 1L

**Surface Area and Volume (Units)**  
Width of rectangle in Cylinder is Circumference  
 $V = A_{base} \times H$ ; Base must be Same as Top.

**Trigonometry**

$\theta = \cos^{-1}(\frac{4}{5})$       Calculator       $\sin 90 = 1$   
 $\theta = \cos^{-1}(0.8)$       Degree       $\cos 90 = 0$   
 $\theta = 36.9^\circ$       Mode!       $\tan 90 = \text{Und}$

$-1 \geq \sin \theta \geq 1$      $-1 \geq \cos \theta \geq 1$

Sin or Cos can't be larger than 1 or smaller than -1

$5 \sin(20) \neq \sin 100$     Cant Distribute/Factor/Divide in/out of sin cos or tan!

**Exponents**

$(x + 3)^2 \neq x^2 + 3^2$        $(a + b)^n \neq a^n + b^n$   
 $(3 + 4)^2 \neq 3^2 + 4^2$       Cant Distribute an exponent into a binomial!  
 $7^2 \neq 25$

$\frac{x^{-2} + 5}{3} \neq \frac{5}{3x^2}$

**Radical**  
Laws       $\sqrt[n]{\quad}$  Don't Forget the Index!

$\sqrt{a^2 + b^2} \neq a + b$        $\sqrt{x^2 + 4} \neq x + 2$   
 $\sqrt{3^2 + 4^2} \neq \sqrt{9} + \sqrt{16}$   
 $\sqrt{9 + 16} \neq 3 + 4$        $\sqrt{2} + \sqrt{2} \neq \sqrt{4}$   
 $\sqrt{25} \neq 7$

**Polynomials**

$(x + 3)^2 = (x + 3)(x + 3) = x^2 + 6x + 9$   
 $(3 + 4)^2 = (3 + 4)(3 + 4) = 7 \times 7 = 7^2 = 49$

**Graphing: TOV**

**Domain/Range:**  
Fingers cover not included      Use your hand!  
Thumb points to included

$x \geq 4$        $[4, \infty)$ : Domain Interval Notation

Left Hand: Thumb Points Greater Than

$x < 0$   
Means  $x$  is negative

**Linear Relations**

Positive slopes go up to the right  
 Negative slopes go up to the left.  
 Zero slopes are Horizontal  $y = \#$   
 Undefined slopes are Vertical  $x = \#$

Linear vs Non-Linear  
 Continuous vs Discrete

Slope Intercept " $b, m$ "  
 Slope Point " $(x, y), m$ "  
 General " $(x, 0) x - int$  and  $(0, y) y - int$ "  
 Gen Form: No fractions/decimals  $+x, y, \# = 0$   
 Parallel : Same Slope  $m = m_{||}$   
 Perpendicular : Negative Reciprocal:  $m = -\frac{1}{m}$

$x - y + 5 = 0$        $x - y + 5 = 0$   
 $+y$        $+y$        $-x$        $-x$   
 $x + 5 = y$       **OR**       $-y + 5 = -x$   
 $y = x + 5$        $-5$        $-5$   
 $-y = -x - 5$   
 $-y = -x - 5$   
 $\frac{-1}{-1} = \frac{-1}{-1}$   
 $y = x + 5$

OR

Add y/Mirror

$x$	$y = f(x)$
-1	$y = f(-1)$
2	$y = f(2)$

**Functions:**  
 $y = f(x)$   
 $f(x) \neq f \times x$   
 $f(x)$  means  $f$  is a function of  $x$ .