Conversion Table		
12 in (inches) = 1 ft (foot)	1 in = 2.54 cm (centimeters)	1 m = 3.281 ft
3 ft = 1 yd (yard)	1 ft = 0.305 m (meters)	1 m = 1.094 yd
5280 ft = 1 mi (miles)	1 yd = 0.914 m	1 km = 0.621 mi
	1 mi = 1.609 km (kilometers)	

Metric Chart for Units of Length
kilo = 1000m hecto = 100m deka = 10m meter = m deci = $\frac{1}{10}m$ centi = $\frac{1}{100}m$ milli = $\frac{1}{1000}m$

$\frac{\%}{100} = \frac{part}{whole}$ and $\%(as\ decimal) \cdot whole = part$

Percent of increase: $\frac{n}{100} = \frac{amount\ of\ increase}{original\ amount}$ **Percent of decrease:** $\frac{n}{100} = \frac{amount\ of\ decrease}{original\ amount}$

Distance formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ **Midpoint formula:** $M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

Simple Interest: $I = Prt$ $A = I + P$ **Compound Interest:** $A = P(1 + \frac{r}{n})^{nt}$ or $A = Pe^{rt}$

$P = 4s$

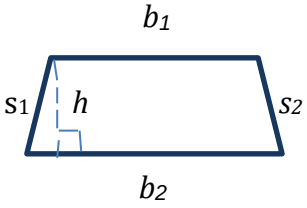
$A = s^2$

$P = 2l + 2w$

$A = lw$

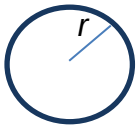
$P = a + b + c$

$A = \frac{1}{2}bh$



$P = s_1 + b_1 + s_2 + b_2$

$A = (1/2)h(b_1 + b_2)$



$C = 2\pi r$

$A = \pi r^2$

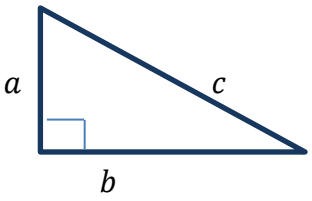
$P = 2a+2b$

$A = bh$

Slope formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$ for line through the points (x_1, y_1) and (x_2, y_2)

Slope intercept form: $y = mx + b$ where y-intercept is b

Point-slope form: $y - y_1 = m(x - x_1)$ where (x_1, y_1) is a point on the line



$a^2 + b^2 = c^2$

Quadratic Formula

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Factoring:

Difference of two squares: $(a^2 - b^2) = (a - b)(a + b)$

Sum of cubes: $(a^3 + b^3) = (a + b)(a^2 - ab + b^2)$

Difference of cubes: $(a^3 - b^3) = (a - b)(a^2 + ab + b^2)$

Circle: Center (h, k) and Radius r

$(x - h)^2 + (y - k)^2 = r^2$

Parabola: Vertex (h, k)

$y = a(x - h)^2 + k$

Vertex of a quadratic

$(h, k) = \left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right)\right)$

Properties of Logarithms: $a > 0 \text{ and } a \neq 1$

$u \text{ and } v \text{ represent positive real numbers} \quad \text{and} \quad r \text{ is any real number}$

Product rule for logarithms	$\log_a uv = \log_a u + \log_a v$
Quotient rule for logarithms	$\log_a \left(\frac{u}{v}\right) = \log_a u - \log_a v$
Power rule for logarithms	$\log_a u^r = r \log_a u$

Change of Base Formula: $a > 0 \text{ and } a \neq 1;\ b > 0 \text{ and } b \neq 1;\ u \text{ is a positive real number}$

$\log_b a = \frac{\log_u a}{\log_u b}$