Math Formula Sheet

Conversion Table		
12 in (inches) = 1 ft (foot)	1 in (inches)= 2.54 cm (centimeters)	1 m (meter)= 3.28 ft
3 ft (feet) = 1 yd (yard)	1 ft (foot) = 0.305 m (meters)	1 m (meter)= 1.094 yd
5280 ft (feet) = 1 mi (miles)	1 yd (yard) = 0.914 m (meters)	1 km = 0.621 mi (mile)
	1 mi (mile) = 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 = $\frac{1}{1000}m$

$P = 4s$

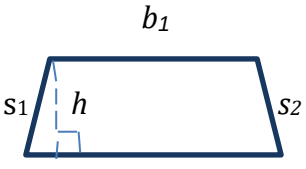
$A = s^2$

$P = 2l + 2w$

$A = lw$

$P = a + b + c$

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



$P = s_1 + b_1 + s_2 + b_2$

$A = \left(\frac{1}{2}\right)h(b_1 + b_2)$

$C = 2\pi r$ or $C = \pi d$

$A = \pi r^2$

$P = 2a + 2b$

$A = bh$

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

Percent of Increase or Decrease: $\frac{n}{100} = \frac{difference}{original\ amount}$

Simple Interest: $I = Prt$ and $A = I + P$

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

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 slope is m and 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

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Factoring:

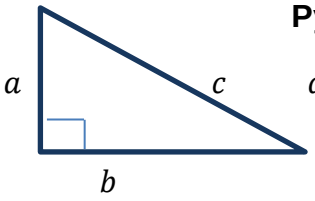
Perfect Square Trinomial: $a^2 \pm 2ab + b^2 = (a \pm b)^2$

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

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



Pythagorean Theorem:

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

Quadratic Formula:

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

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

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

Cancellation Properties of Exponentials and Logarithms: For b > 0 and b ≠ 1,

$b^{\log_b x} = x$ and $\log_b b^x = x$

Logarithmic Function Definition: For x > 0, b > 0, and b ≠ 1

$y = \log_b x$ *if and only if* $x = b^y$

Radians/Degrees conversion:

Degrees to Radians: Multiply by $\frac{\pi}{180^\circ}$ Radians to Degrees: Multiply by $\frac{180^\circ}{\pi}$

Fundamental Identities:

$\tan\theta = \frac{\sin\theta}{\cos\theta}$, $\cot\theta = \frac{\cos\theta}{\sin\theta}$, $\cot\theta = \frac{1}{\tan\theta}$, $\sec\theta = \frac{1}{\cos\theta}$, $\csc\theta = \frac{1}{\sin\theta}$

Cofunction Identities:

$\cos(90° - \theta) = \sin\theta$, $\tan(90° - \theta) = \cot\theta$, $\sec(90° - \theta) = \csc\theta$

$\sin(90° - \theta) = \cos\theta$, $\cot(90° - \theta) = \tan\theta$, $\csc(90° - \theta) = \sec\theta$

Law of Cosines in any △ABC,

$a^2 = b^2 + c^2 - 2bc\cos A$

$b^2 = a^2 + c^2 - 2ac\cos B$

$c^2 = a^2 + b^2 - 2ab\cos C$

Law of Sines in any △ABC,

$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$