Rules of Exponents & Radicals

$x^m \cdot x^n = x^{m+n}$

$\frac{x^m}{x^n} = x^{m-n}$

$\frac{2}{6-\sqrt{10}} \cdot \frac{6+\sqrt{10}}{6+\sqrt{10}}$

$(x^m)^n = x^{mn}$

$(2x^2 3y^3)^3 = 8x^6 27y^9$

$x^{-m} = \frac{1}{x^m}$

$\sqrt[n]{x^m} = x^{\frac{m}{n}}$

$\sqrt[3]{x^4} = x\sqrt[3]{x}$

$(x+y)^2 = x^2 + 2xy + y^2$ not $x^2 + y^2$

$x^2 - y^2 = (x-y)(x+y)$

Slope

$y = mx+b$

$y-y_1 = m(x-x_1)$

$m = \frac{\text{change in y}}{\text{change in x}} = \frac{y_2 - y_1}{x_2 - x_1}$

Exponential Growth and Decay

Growth

$y = a(1+p)^t$

a = initial amount
p = percent change
t = time for each increase

Decay

$y = a(1-p)^t$

of Solutions

for $ax^2 + bx + c$:

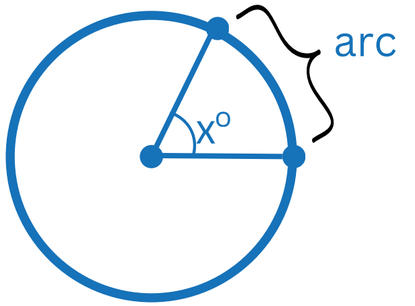
$b^2 > 4ac \rightarrow 2$

$b^2 = 4ac \rightarrow 1$

$b^2 < 4ac \rightarrow 0$

Arcs

1π radians = 180 degrees



$\frac{x}{360^o} = \frac{\text{arc}}{\text{circumference}}$

Parabolas

Factored Form

$y = (x-a)(x-b)$

a and b = x intercepts

Vertex Form

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

a = slope

(h, k) = vertex

Standard to Vertex Form

$y = ax^2 + bx + c \rightarrow y = a(x-h)^2+k$

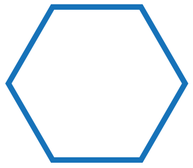
$h = -b/2a$

Quadratic Formula

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

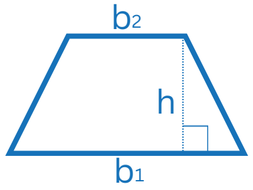
Polygon Interior Angles

Sum of interior angles = 180(n - 2)
n = number of sides

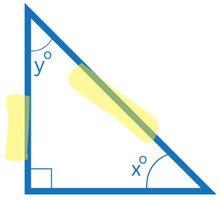


Trapezoid Area

$\frac{b_1 + b_2}{2} \cdot h$



Sin(x) = Cos(90–x)



sin(x) = cos(y)
90 + **x** + **y** = 180
y = 90 - x
sin(x) = cos (90 - x)

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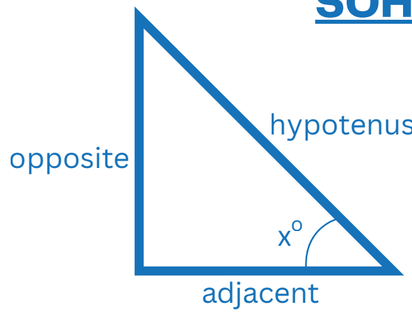

$\sin(x) = \frac{\textbf{o}\text{pposite}}{\textbf{h}\text{ypotenuse}}$

$\cos(x) = \frac{\textbf{a}\text{djacent}}{\textbf{h}\text{ypotenuse}}$

$\tan(x) = \frac{\textbf{o}\text{pposite}}{\textbf{a}\text{djacent}}$

Circle Equation

$(x - \textbf{h})^2 + (y - \textbf{k})^2 = \textbf{r}^2$

(**h**, **k**) = center
r = radius