

Sheet#674: Algebra, Graphs, and Trigonometry Formulas

Radians and Degrees

$$\theta_{\text{deg}} = \frac{180^\circ}{\pi} \theta_{\text{rad}}$$

$$\theta_{\text{rad}} = \frac{\pi}{180^\circ} \theta_{\text{deg}}$$

Arclength

$$s = r \theta_{\text{rad}}$$

Circular Functions

Polar and Cartesian coordinates

$$\sin\theta = \frac{y}{r} \quad \cos\theta = \frac{x}{r} \quad \tan\theta = \frac{y}{x}$$

$$r = \sqrt{x^2 + y^2}$$

$$\theta = \tan^{-1}\left(\frac{y}{x}\right)$$

Master formula

$$y = \pm A \sin(B(t-h)) + k$$

$$B = \frac{2\pi}{T} = \frac{360^\circ}{T}$$

$$T = \frac{2\pi}{B} = \frac{360^\circ}{B}$$

f = “regular” frequency
(oscillations/second).

$$f = 1/T$$

Quadratic Formula

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

Circles / Distance Formula

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