

Math 122 Formula Sheet

$$\sin(x \pm y) = \sin x \cos y \pm \cos x \sin y$$

$$\cos(x \pm y) = \cos x \cos y \mp \sin x \sin y$$

$$\sin\left(\frac{u}{2}\right) = \pm \sqrt{\left(\frac{1 - \cos u}{2}\right)}$$

$$\cos\left(\frac{u}{2}\right) = \pm \sqrt{\left(\frac{1 + \cos u}{2}\right)}$$

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

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

$$\mathbf{u} \cdot \mathbf{v} = |\mathbf{u}| |\mathbf{v}| \cos \theta$$

$$S_n = n \left(\frac{a + a_n}{2} \right)$$

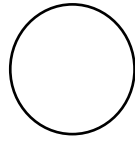
$$S_n = a \frac{(1 - r^n)}{(1 - r)}$$

$$S = \frac{a}{(1 - r)}$$

$$(a + b)^n = \binom{n}{0} a^n + \binom{n}{1} a^{n-1} b + \binom{n}{2} a^{n-2} b^2 + \dots + \binom{n}{n-1} a b^{n-1} + \binom{n}{n} b^n$$

Circle

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



Parabola

$$(y - k)^2 = 4p(x - h)$$

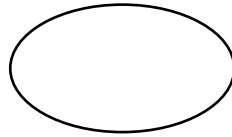


$$(x - h)^2 = 4p(y - k)$$

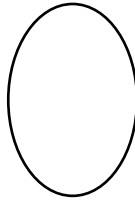


Ellipse

$$\frac{(x - h)^2}{a^2} + \frac{(y - k)^2}{b^2} = 1$$

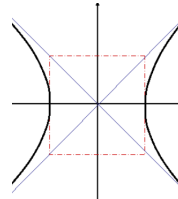


$$\frac{(x - h)^2}{b^2} + \frac{(y - k)^2}{a^2} = 1$$



Hyperbola

$$\frac{(x - h)^2}{a^2} - \frac{(y - k)^2}{b^2} = 1$$



$$\frac{(y - k)^2}{a^2} - \frac{(x - h)^2}{b^2} = 1$$

