ALGEBRA 2 WITH TRIGONOMETRY FORMULA REFERENCE SHEET

Area of a Triangle

$$K = \frac{1}{2}ab\sin C$$

Functions of the Sum of Two Angles

$$\sin(A+B) = \sin A\cos B + \cos A\sin B$$

$$\cos(A+B) = \cos A\cos B - \sin A\sin B$$

$$\tan(A+B) = \frac{\tan A + \tan B}{1 - \tan A\tan B}$$

Functions of the Difference of Two Angles

$$\sin(A-B) = \sin A\cos B - \cos A\sin B$$

$$\cos(A-B) = \cos A\cos B + \sin A\sin B$$

$$\tan(A-B) = \frac{\tan A - \tan B}{1 + \tan A\tan B}$$

Law of Sines

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

Sum of a Finite Arithmetic Series

$$S_n = \frac{n(a_1 + a_n)}{2}$$

Binomial Theorem

$$(a+b)^n = {}_nC_0a^nb^0 + {}_nC_1a^{n-1}b^1 + {}_nC_2a^{n-2}b^2 + \cdots + {}_nC_na^0b^n$$

$$(a+b)^n = \sum_{r=0}^{n} {}_nC_r a^{n-r}b^r$$

Law of Cosines

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

Functions of the Double Angle

$$\sin 2A = 2\sin A\cos A$$

$$\cos 2A = \cos^2 A - \sin^2 A$$

$$\cos 2A = 2\cos^2 A - 1$$

$$\cos 2A = 1 - 2\sin^2 A$$

$$\tan 2A = \frac{2\tan A}{1 - \tan^2 A}$$

Functions of the Half Angle

$$\sin\frac{1}{2}A = \pm\sqrt{\frac{1-\cos A}{2}}$$

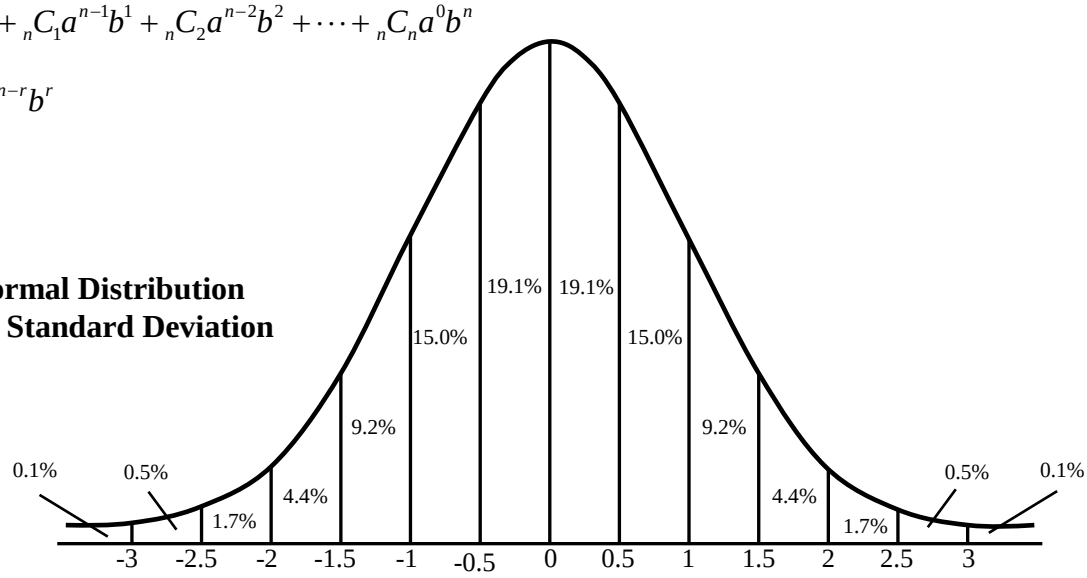
$$\cos\frac{1}{2}A = \pm\sqrt{\frac{1+\cos A}{2}}$$

$$\tan\frac{1}{2}A = \pm\sqrt{\frac{1-\cos A}{1+\cos A}}$$

Sum of a Finite Geometric Series

$$S_n = \frac{a_1(1-r^n)}{1-r}$$

The Normal Distribution
Based on Standard Deviation



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