

MTH 30 CHEAT SHEET (Ojakian)

1. $\frac{-B \pm \sqrt{B^2 - 4AC}}{2A}$

2. Axis of Symmetry: $x = -B/2A$

3. $S = \theta R$

4. Trigonometric Definitions

(a) $\sin(\theta) = \frac{\textit{Opposite}}{\textit{Hypotenuse}}$

(b) $\cos(\theta) = \frac{\textit{Adjacent}}{\textit{Hypotenuse}}$

(c) $\tan(\theta) = \frac{\textit{Opposite}}{\textit{Adjacent}}$

(d) $\cot(\theta) = \frac{1}{\tan(\theta)}$

(e) $\sec(\theta) = \frac{1}{\cos(\theta)}$

(f) $\csc(\theta) = \frac{1}{\sin(\theta)}$

5. Trigonometric Values

(a) $\sin(45^\circ) = \cos(45^\circ) = \frac{\sqrt{2}}{2}$

(b) $\tan(45^\circ) = 1$

(c) $\sin(30^\circ) = \cos(60^\circ) = \frac{1}{2}$

(d) $\sin(60^\circ) = \cos(30^\circ) = \frac{\sqrt{3}}{2}$

(e) $\tan(30^\circ) = \frac{\sqrt{3}}{3}$

(f) $\tan(60^\circ) = \sqrt{3}$

6. Trig Identities

(a) $\tan(\theta) = \frac{\sin(\theta)}{\cos(\theta)}$ (*Quotient Identity I*)

(b) $\cot(\theta) = \frac{\cos(\theta)}{\sin(\theta)}$ (*Quotient Identity II*)

(c) $\sec(\theta) = \frac{1}{\cos(\theta)}$ (*Reciprocal Identity I*)

(d) $\csc(\theta) = \frac{1}{\sin(\theta)}$ (*Reciprocal Identity II*)

(e) $\cot(\theta) = \frac{1}{\tan(\theta)}$ (*Reciprocal Identity III*)

(f) $\sin^2(\theta) + \cos^2(\theta) = 1$ (*Pythagorean Identity I*)

(g) $1 + \tan^2(\theta) = \sec^2(\theta)$ (*Pythagorean Identity II*)

(h) $1 + \cot^2(\theta) = \csc^2(\theta)$ (*Pythagorean Identity III*)

(i) $\sin(-\theta) = -\sin(\theta)$ (*Odd/Even Identity I*)

(j) $\cos(-\theta) = \cos(\theta)$ (*Odd/Even Identity II*)

(k) $\tan(-\theta) = -\tan(\theta)$ (*Odd/Even Identity III*)

(l) $\sin(\theta) = \cos(\frac{\pi}{2} - \theta)$ (*Cofunction Identity I*)

(m) $\cos(\theta) = \sin(\frac{\pi}{2} - \theta)$ (*Cofunction Identity II*)

(n) $\cos(A + B) = \cos(A)\cos(B) - \sin(A)\sin(B)$ (*Sum Formula for Cosine*)

(o) $\cos(A - B) = \cos(A)\cos(B) + \sin(A)\sin(B)$ (*Difference Formula for Cosine*)

(p) $\sin(A + B) = \sin(A)\cos(B) + \cos(A)\sin(B)$ (*Sum Formula for Sin*)

(q) $\sin(A - B) = \sin(A)\cos(B) - \cos(A)\sin(B)$ (*Difference Formula for Sin*)