

AP Precalculus - M3Y & M3Z

Trigonometry - Homework 1

1. Complete the table (without the use of a calculator):

θ ($^\circ$)	θ (rad)	$\sin \theta$	$\cos \theta$	$\tan \theta$
0				
30				
45				
60				
90				
180				
	$\frac{3\pi}{2}$			
360				
	5π			
150				
	$\frac{4\pi}{3}$			
-60				
	$\frac{5\pi}{6}$			
	$\frac{5\pi}{2}$			

2. Find the period, frequency, and amplitude (if it exists) of the following functions:

(i) $f(\theta) = -2 \cos(7\theta)$

(iv) $h(x) = 5 \sin\left(\frac{2\pi x}{3}\right)$

(ii) $g(\varphi) = 2 \tan\left(-\frac{\varphi}{2} + 2\right)$

(v) $p(x) = -\cot(8x - 1) - 6$

(iii) $k(y) = \frac{2}{7} \sin\left(\frac{3y}{2}\right) - 10$

(vi) $h(x) = \frac{2}{3} \sin\left(\frac{-4x}{5} + 8\right) + 9$

3. Find the general solution of the equations:

(i) $2 \sin x - 3 = -2$

(iv) $4 \sin(2x - 1) + 2\sqrt{2} = 0$

(ii) $6 \cos(x + \pi) = \sqrt{18}$

(v) $-\sqrt{3} \cot\left(\frac{7\pi}{8} - 5x\right) = \sqrt{3}$

(iii) $1 - \tan\left(5x + \frac{2\pi}{5}\right) = 1$

(vi) $\frac{5}{2} \cos\left(\frac{\pi x}{3}\right) = \frac{2}{5}$

4. Find the solutions of:

(i) The equation $2 \sin x - 3 = -2$ in $[-\pi, \pi]$

(ii) The equation $6 \cos(x + \pi) = \sqrt{18}$ in $(-\frac{3\pi}{2}, 3\pi)$

(iii) The equation $1 - \tan\left(5x + \frac{2\pi}{5}\right) = 1$ in $[-2\pi, 2\pi)$

(iv) The equation $4 \sin(2x - 1) + 2\sqrt{2} = 0$ in $(-\frac{5\pi}{2}, \frac{\pi}{3})$

(v) The equation $-\sqrt{3} \cot\left(\frac{7\pi}{8} - 5x\right) = \sqrt{3}$ in $[-\pi, \frac{3\pi}{2}]$

(vi) The equation $\frac{5}{2} \cos\left(\frac{\pi x}{3}\right) = \frac{2}{5}$ in $[-3, 6)$