WORKSHEET 12

SCHOOL: BA SANGAM COLLEGE   YEAR: 10
SUBJECT: MATHEMATICS   NAMEOF STUDENT: _____

| STRAND	4- GEOMETRY
SUB-STRAND	TRIGNOMETRIC FUNCTIONS
LEARNING OUTCOME	• Sketch the trigonometric graphs. • Identify the graphs of sine, cosine and tangent

Graphs of Trigonometric Functions

There are 3 trigonometric functions that we have learnt ie Sine, Cosine and Tangent. In this lesson we are going to draw and understand about the graphs of the three trigonometric functions.

The Sine Graph

- $y = \sin \theta$ **is known as the sine function.**
- Using the unit circle, we can plot the values of y against the corresponding values of θ. The **graph of $y = \sin \theta$, for $0° \le \theta \le 360°$** obtained is as shown:
- Using table of values

x	0°	90°	180°	270°	360°
Y = sin x	Sin 0 = 0	Sin 90 = 1	Sin 180 = 0	Sin 270 = -1	Sin 360 = 0
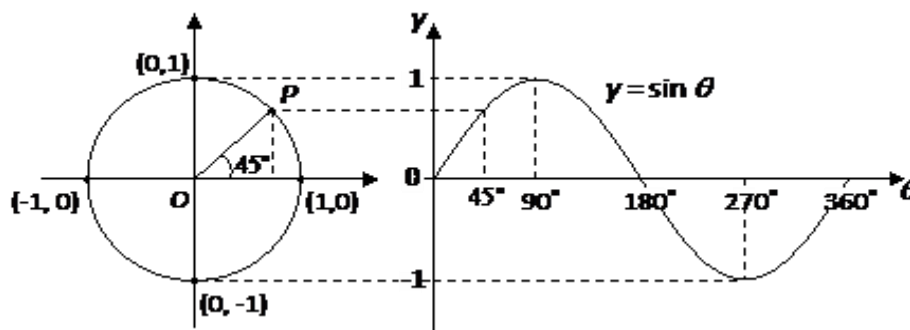
Properties of the Sine function:

- The sine function forms a wave that starts from the origin
- $\sin \theta = 0$ when $\theta = 0°, 180°, 360°$.

Maximum value of $\sin \theta$ is 1 when $\theta = 90°$. Minimum value of $\sin \theta$ is -1 when $\theta = 270°$. So, the range of

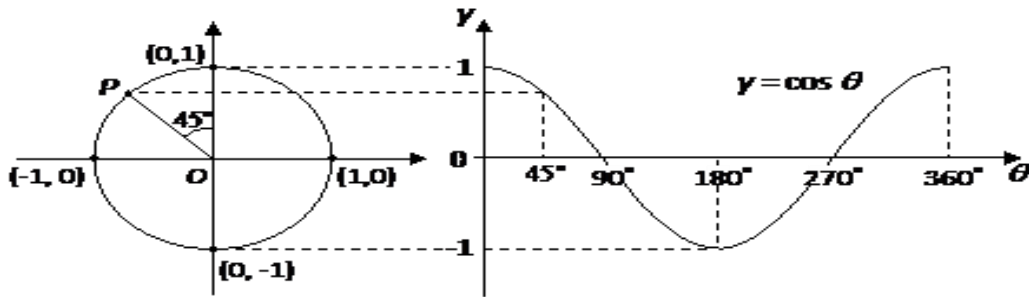values of sin θ is $-1 \leq \sin \theta \leq 1$.

The Cosine Graph

- **y = Cos θ is known as the cosine function.**
- Using the unit circle, the values of y against the corresponding values of θ *can be plotted.*

The **graph of y = cos θ, for $0\degree \leq \theta \leq 360\degree$** obtained is as shown:

x	0°	90°	180°	270°	360°
Y = Cos x	Cos 0 = 1	Cos 90 = 0	Cos 180 = -1	Cos 270 = 0	Cos 360 = 1

Properties of the Cosine function:

- The cosine function forms a wave that starts from the point (0,1)
- $\cos \theta = 0$ when $\theta = 90\degree, 270\degree$.
- Maximum value of $\cos \theta$ is 1 when $\theta = 0\degree, 360\degree$. Minimum value of $\cos \theta$ is -1 when $\theta = 180\degree$. So, the range of values of $\cos \theta$ is $-1 \leq \cos \theta \leq 1$.

Exercise

Sketch the following graphs   (3 marks each)

a) y = 2 Sin ϴ	b) y = 3 Cos x	C) y = - 2 Sin ϴ