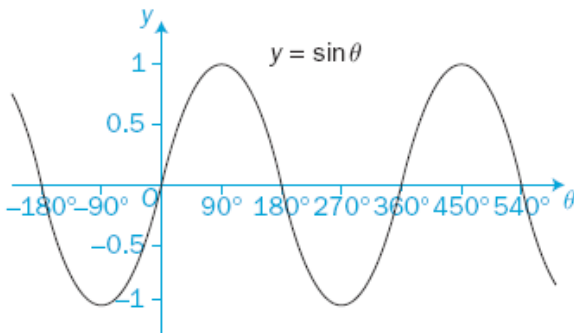_____

TRIGONOMETRIC FUNCTIONS

SINE CURVE

The Graph of *f(x) = sin x*

o The sine curve is a **periodic function**.
It has a **period** of $360°$ or 2π radians.

$$\sin (\theta + 360°) = \sin \theta \quad \text{and} \quad \sin (\theta - 360°) = \sin \theta$$
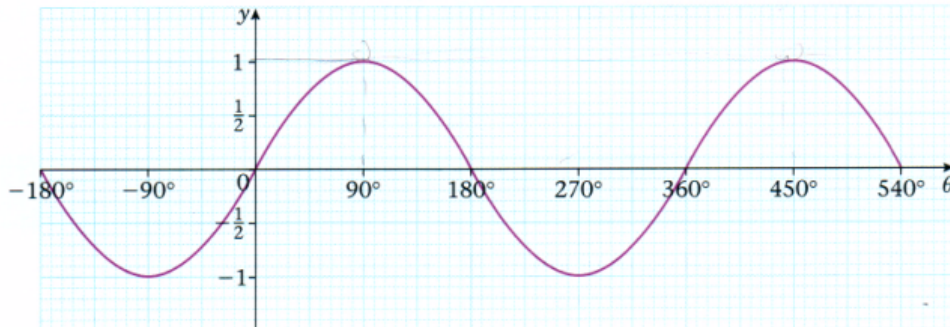
Periodic functions repeat themselves after a given interval. This interval is called the **period** of the function.

o The graph of $y = \sin \theta$ has symmetry about the line $\theta = 90°$.

$$\sin (90° + \theta) = \sin (90° - \theta)$$

Similarly $y = \sin \theta$ has symmetry about the line $\theta = 450°$ and so on.

$y = \sin \theta$

Functions that repeat themselves after a certain interval are called periodic functions, and the interval is called the period of the function. You can see that $\sin \theta$ is periodic with a period of $360°$.

Hint: The graph of sin θ, where θ is in radians, has period 2π.

There are many symmetry properties of $\sin \theta$ (some were seen in Example 5) but you can see from the graph that

$$\sin (\theta + 360°) = \sin \theta° \text{ and } \sin (\theta - 360°) = \sin \theta$$
$$\sin (90° - \theta) = \sin (90° + \theta)$$

Hint: Because it is periodic.

Hint: Symmetry about $\theta = 90°$.