Answer on Question #49926 – Math – Calculus

sketch the graph of the function f(x)=sinx

Solution:

$$f(x) = \sin x$$

The domain of function f is the set of all real numbers. The range of f is the interval $[-1, 1]$.

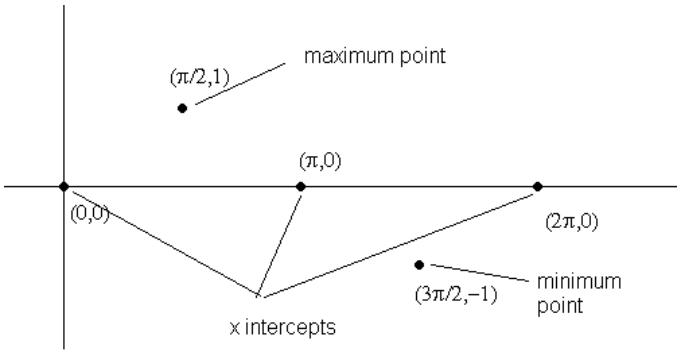
Also function f is periodic with period equal to 2π.

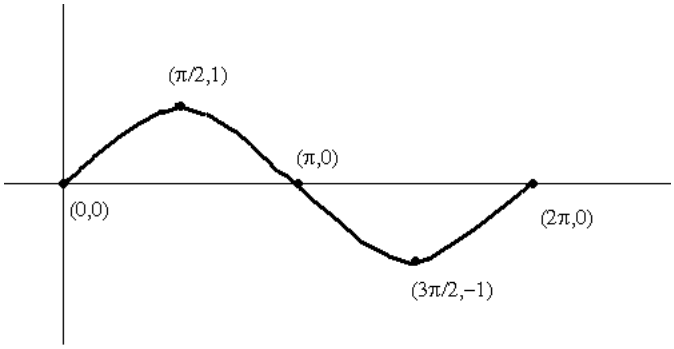
The graph of $f(x)$ over one period can be sketched by first finding points that give important information such as x intercepts, y intercept, maxima and minima.

Let us make a table of values for function f over the interval one period: $[0\ , 2\pi]$.

x	0	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$	2π
$f(x)$	0	1	0	-1	0

The choice of the values of x in the table correspond to$x$ and y intercepts, maxima and minima points. These are useful points to graph the sine function over one period:$[0\ , 2\pi]$. To graph f, we first graph the points in the table then join these points. Of course you may add extra points if you wish. But the five points used are key points. Another important point to note is that the 5 key points divide the period into 4 equal parts. Seefiguresbelow.





Complete picture of the graph of the $sin(x)$ changes with x: