Answer to Question #84209 – Math – Algebra

Question

The function $f(x) = \sin x$ is monotone in the interval $[0, \pi]$. True or false?

Solution

The monotone function is either entirely nonincreasing or nondecreasing (see http://mathworld.wolfram.com/MonotonicFunction.html). The function is increasing on the interval $(0, \pi/2)$ and decreasing on the interval $(\pi/2, \pi)$. Since the function is not increasing or decreasing in the points $(0,0), (\pi/2, 1), (\pi, 0)$ then the given function is not monotone in the interval $[0, \pi]$.
Answer: false.