

# **MAT123**

## Symmetry of Trigonometric Functions

# Even/Odd Trigonometric Functions

$f(\theta) = \cos \theta$  is an even function

$$f(-x) = f(x)$$

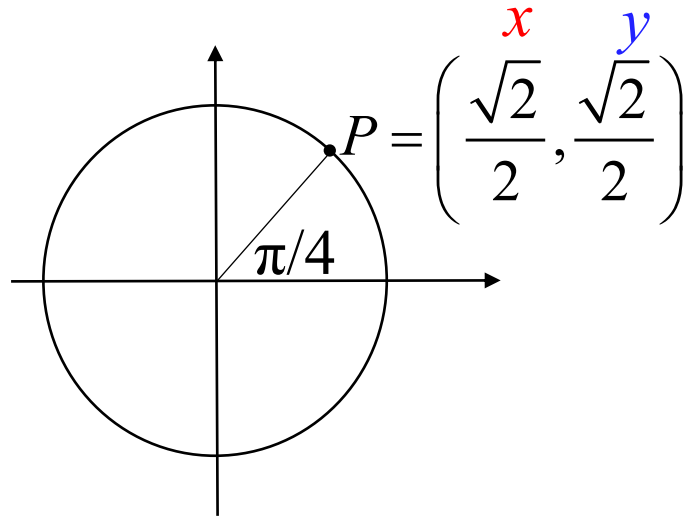
$f(\theta) = \sin \theta$  is an odd function

$$f(-x) = -f(x)$$

Also,  $f(\theta) = \tan \theta$  is an odd function

# Using Symmetry to Evaluate Trigonometric Functions

ex. Evaluate the following given the graph:



$$\sin \theta = y$$

$$\cos \theta = x$$

- $\sin \frac{\pi}{4}$

- $\sin \left( -\frac{\pi}{4} \right)$

- $\cos \left( -\frac{\pi}{4} \right)$

- $\tan \left( -\frac{\pi}{4} \right)$

$$f(-x) = -f(x)$$

$$f(-x) = f(x)$$