

The Unit Circle - Part I



Preliminaries and Objectives

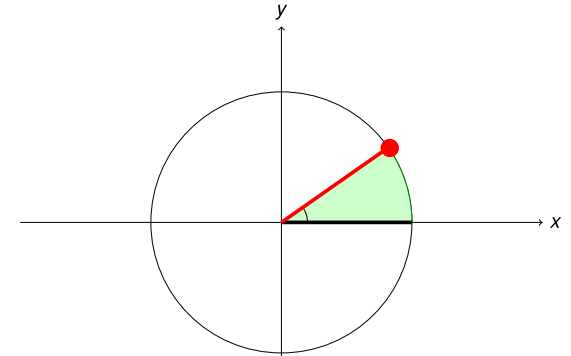
Preliminaries:

- Measurement of angles in degrees
- Cartesian Coordinate System

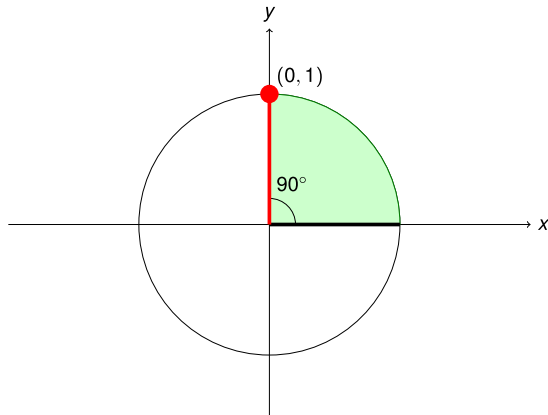
Objectives:

- Define the functions *sin* and *cos*
- Find values of $\cos \theta$ and $\sin \theta$ if θ is a multiple of 90°

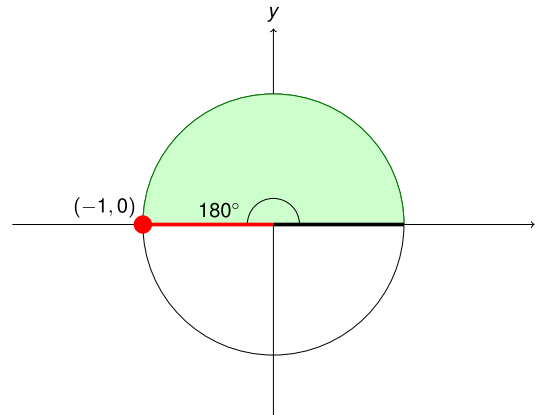
Associating Angles and Points



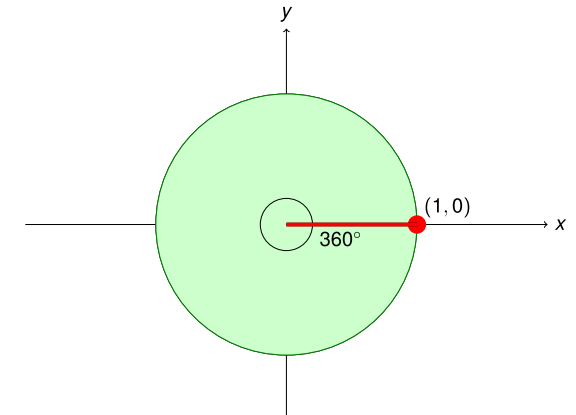
Associating Angles and Points



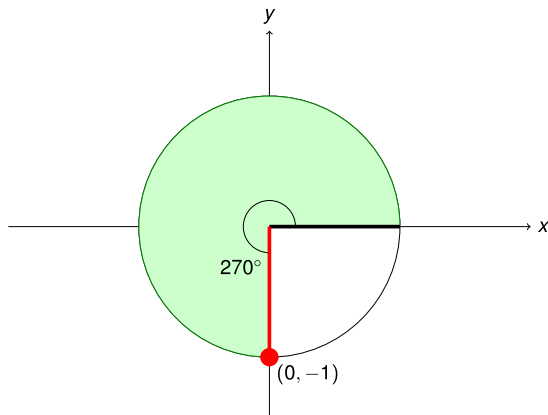
Associating Angles and Points



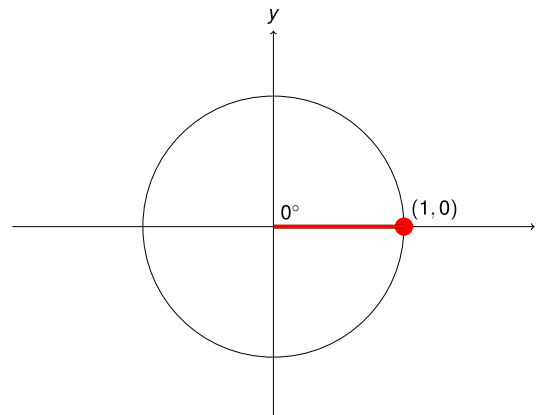
Associating Angles and Points



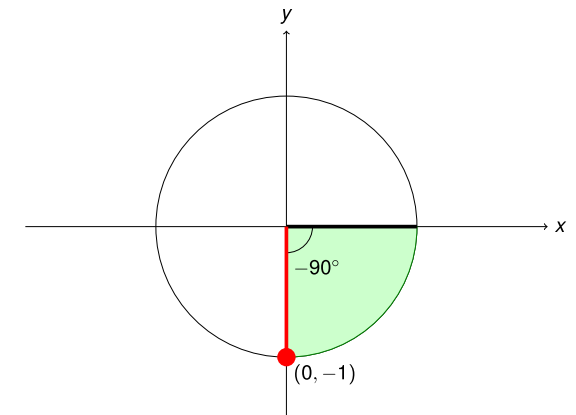
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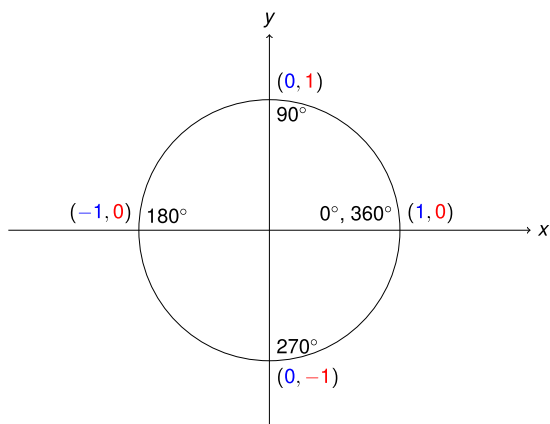


Associating Angles and Points



Associating Angles and Points





The Unit Circle

$$\cos 180^\circ = -1$$

$$\cos 0^\circ = 1$$

$$\sin 270^\circ = -1$$

$$\cos 360^\circ = 1$$

$$\sin 0^\circ = 0$$

$$\sin 360^\circ = 0$$

$$\sin 90^\circ = 1$$

$$\sin 180^\circ = 0$$

$$\cos 90^\circ = 0$$

$$\cos 270^\circ = 0$$

$$\cos -90^\circ = 0$$

$$\sin -90^\circ = -1$$

Recap

- Angles θ are measured counterclockwise from the positive side of the x -axis
- $\cos \theta$ is the x -coordinate of the point on the unit circle associated with the angle
- $\sin \theta$ is the y -coordinate of the point on the unit circle associated with the angle