

## The Unit Circle - Part I



## Preliminaries and Objectives

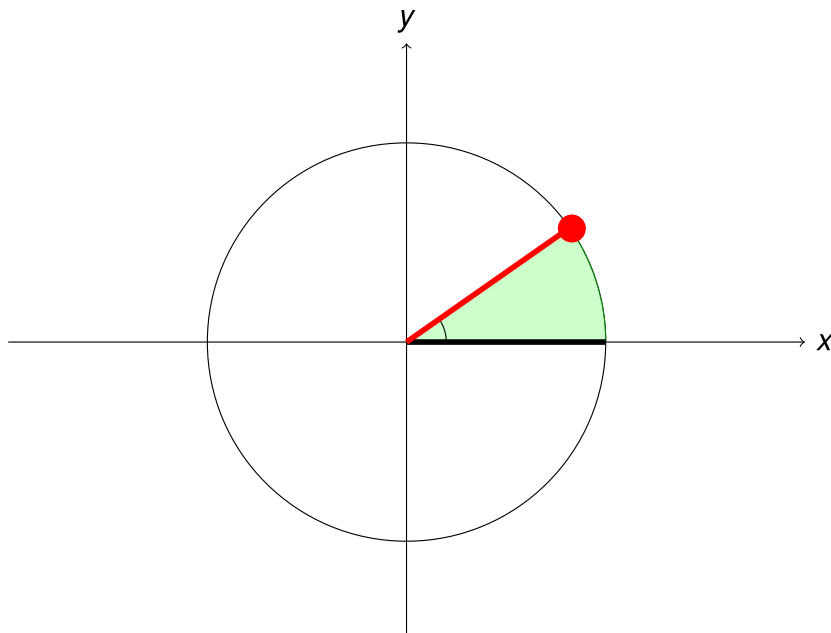
Preliminaries:

- Measurement of angles in degrees
- Cartesian Coordinate System

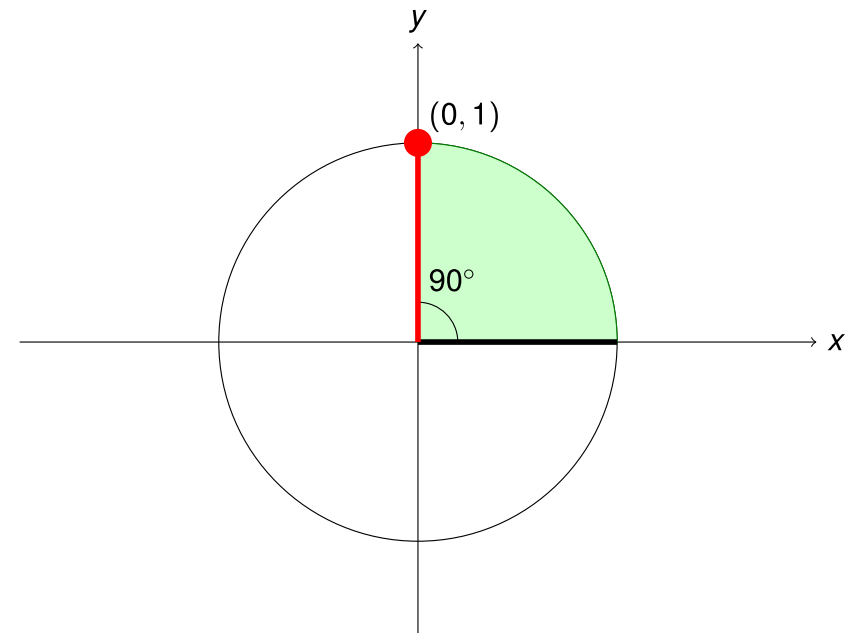
Objectives:

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

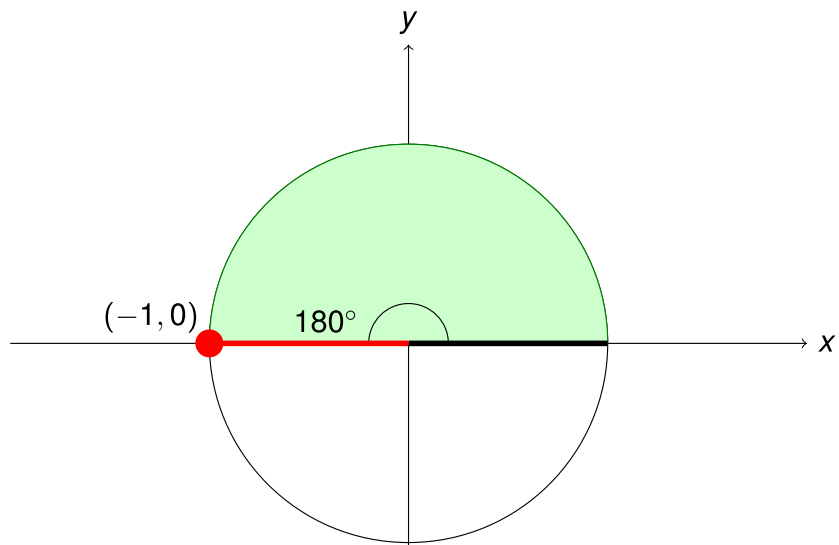
## Associating Angles and Points



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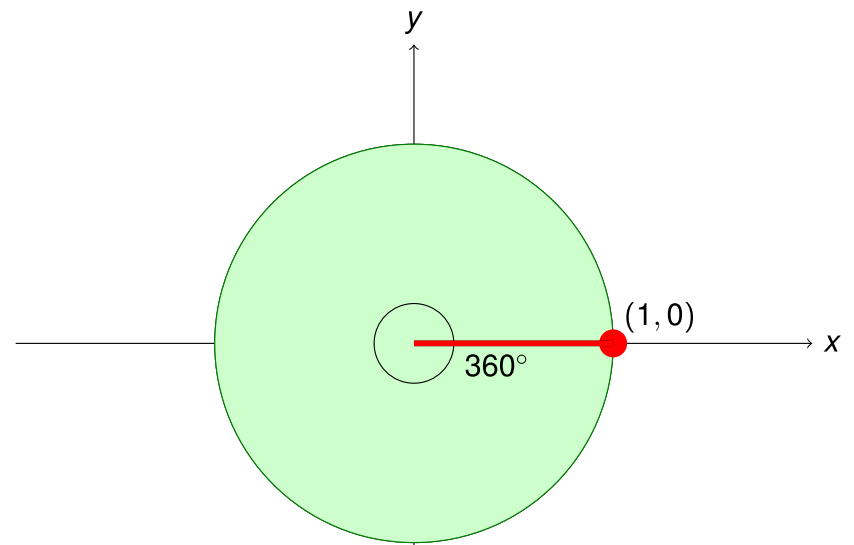
## Associating Angles and Points



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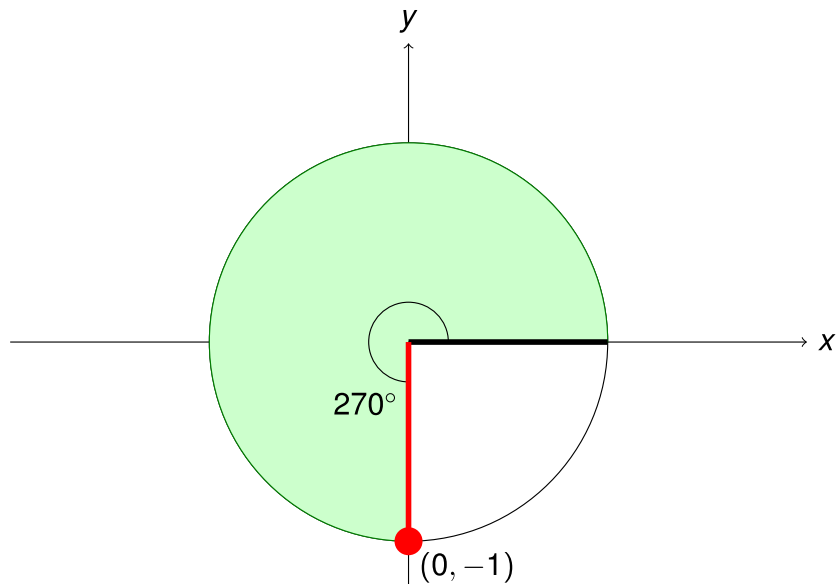
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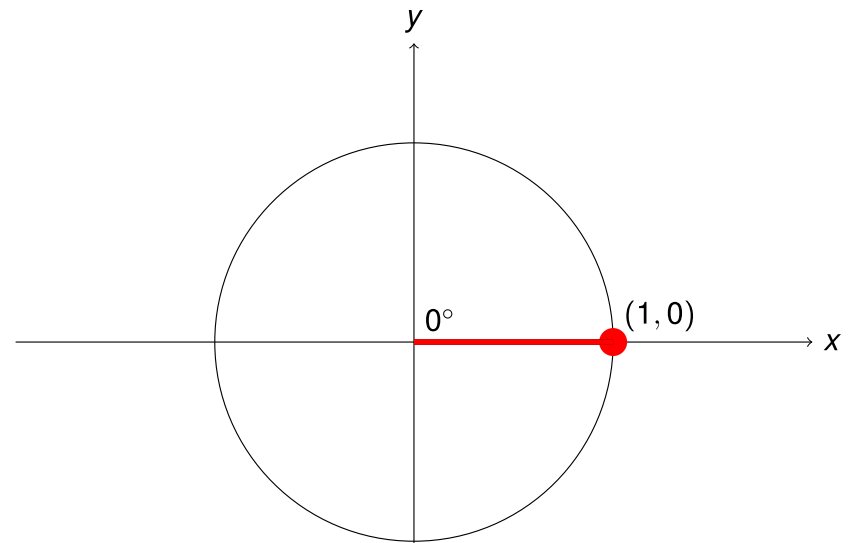
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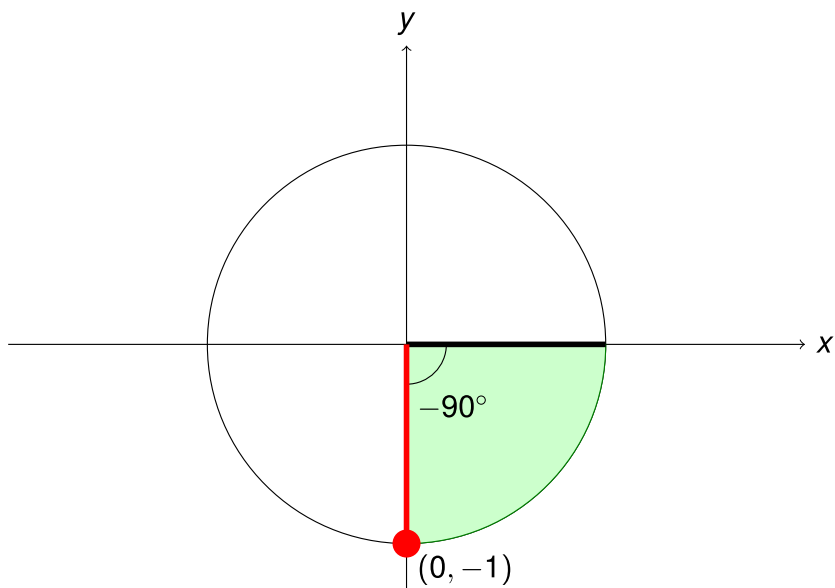
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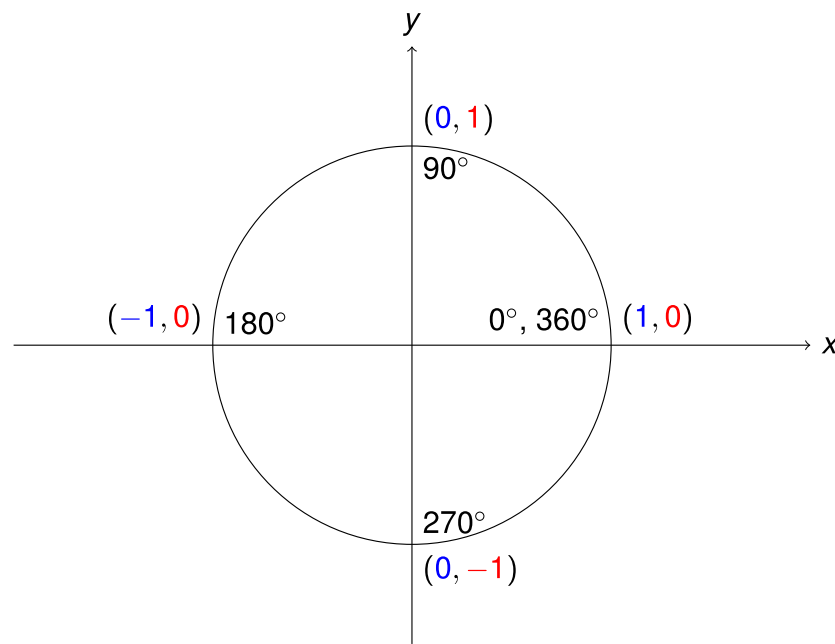
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## Associating Angles and Points



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## The Unit Circle

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

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

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

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

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

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

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

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

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

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

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

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

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## Recap

- Angles  $\theta$  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

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