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°
Associating Angles and Points
Associating Angles and Points

The Unit Circle - Part I
Associating Angles and Points

coordinates: $(-1, 0)$

angle: $180^\circ$
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\[ (0, -1) \]
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- $(1, 0)$
- $0^\circ$
Associating Angles and Points

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The Unit Circle - Part I
<table>
<thead>
<tr>
<th>Angle</th>
<th>Cos Value</th>
<th>Angle</th>
<th>Sin Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$180^\circ$</td>
<td>$-1$</td>
<td>$90^\circ$</td>
<td>$1$</td>
</tr>
<tr>
<td>$0^\circ$</td>
<td>$1$</td>
<td>$180^\circ$</td>
<td>$0$</td>
</tr>
<tr>
<td>$270^\circ$</td>
<td>$-1$</td>
<td>$90^\circ$</td>
<td>$0$</td>
</tr>
<tr>
<td>$360^\circ$</td>
<td>$1$</td>
<td>$270^\circ$</td>
<td>$0$</td>
</tr>
<tr>
<td>$0^\circ$</td>
<td>$0$</td>
<td>$-90^\circ$</td>
<td>$0$</td>
</tr>
<tr>
<td>$360^\circ$</td>
<td>$0$</td>
<td>$-90^\circ$</td>
<td>$-1$</td>
</tr>
</tbody>
</table>
• 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