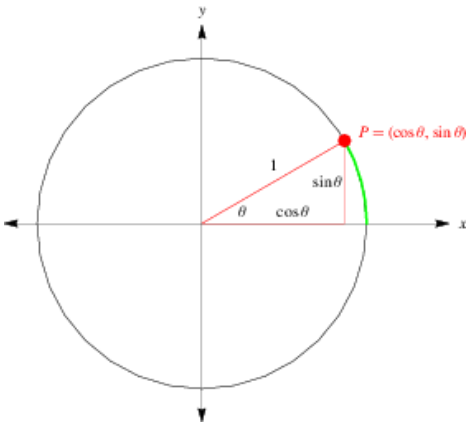
Reciprocal Trigonometry Functions

- $csc\theta = \frac{1}{sin\theta} = \frac{1}{y}$
- $sec\theta = \frac{1}{cos\theta} = \frac{1}{x}$
- $cot\theta = \frac{1}{tan\theta} = \frac{cos\theta}{sin\theta} = \frac{x}{y}$

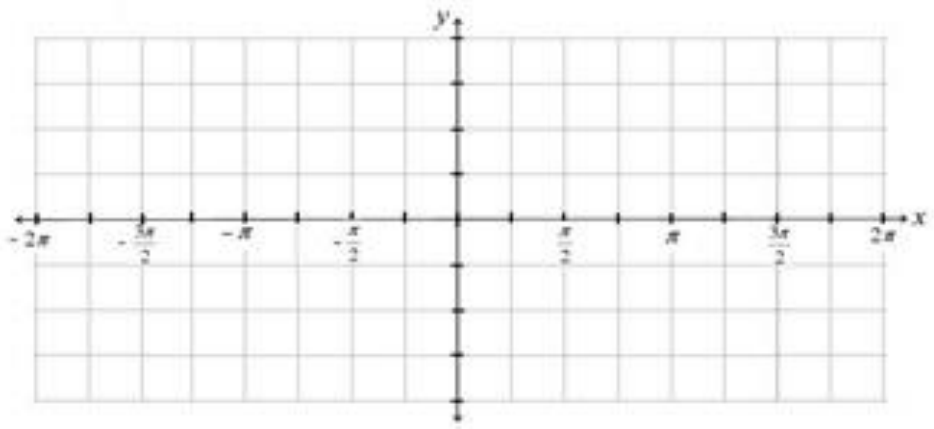


Examples:

- What is the exact value of $sec\left(-\frac{\pi}{6}\right)$?

- What is the decimal value of each expression? Round to the nearest thousandth.
  - $\cot(-34°)$
  - $csc\left(\frac{5\pi}{8}\right)$
  - $\sec(1.2)$
  - What is the graph of $y = cot\frac{1}{2}x$ in the interval from 0 to 2π?

- Graph $y = cscx$.



- A seaman is standing atop a ship's watchtower that stands 115 ft. above the water's surface in the center of the ship. He is using a spotting scope at that height to search the waters around the ship. The equation that represents the distance, *y*, from the center of the ship along the water to any object the seaman spots is given by $y = 115cot\theta$, where θ is the angle of depression from the seaman to the object. If the seaman spots two objects, one at an angle of depression of $4°$ and the other at an angle of depression of $11°$, how far are the spotted objects from the center of the ship, rounded to the nearest foot?