

Unit 4: Trigonometric Functions

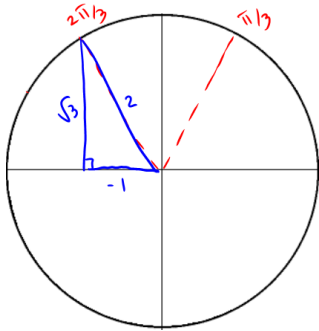
Activity 2: Trig Ratios of any Angle (Including the Special Angles)

Homework/Formative Assessment

1. Find the exact ratio for $\csc \theta$, $\sec \theta$, and $\cot \theta$ for $\frac{2\pi}{3}$ radians.
2. Find all the possible angles for A if $0 \leq A \leq 2\pi$:
 - a. $\cos A = \frac{-1}{\sqrt{2}}$
 - b. $\tan A = \frac{-1}{\sqrt{3}}$
3. Solve for θ if $\cos \theta = \frac{\sqrt{3}}{2}$ and $0 \leq \theta \leq 2\pi$.
4. Find the exact value of $\csc\left(\frac{7\pi}{6}\right)$.
5. Find the exact value of $\sec\left(\frac{21\pi}{4}\right)$.
6. Find all values of θ for which $2\sin \theta - 1 = 0$ for $0 \leq \theta \leq 2\pi$.

Homework/Formative Assessment SOLUTIONS

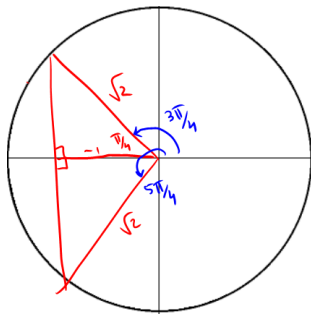
1. Find the exact ratio for $\csc \theta$, $\sec \theta$, and $\cot \theta$ for $\frac{2\pi}{3}$ radians.



$$\csc\left(\frac{2\pi}{3}\right) = \frac{2}{\sqrt{3}} \quad \sec\left(\frac{2\pi}{3}\right) = -2 \quad \cot\left(\frac{2\pi}{3}\right) = \frac{-1}{\sqrt{3}}$$

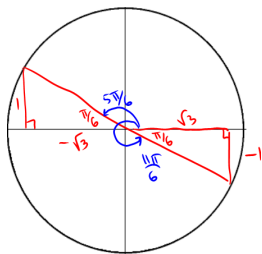
2. Find all the possible angles for A if $0 \leq A \leq 2\pi$:

a. $\cos A = \frac{-1}{\sqrt{2}}$



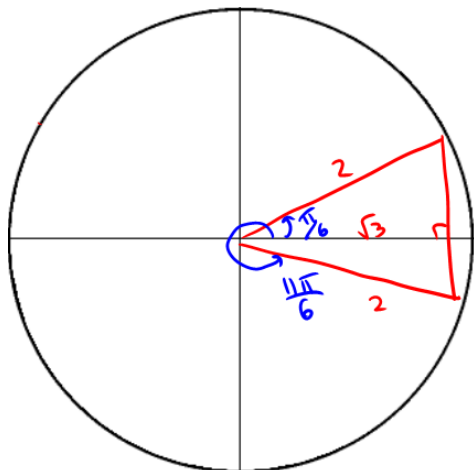
$$A = \frac{3\pi}{4} \text{ or } \frac{5\pi}{4}$$

b. $\tan A = \frac{-1}{\sqrt{3}}$



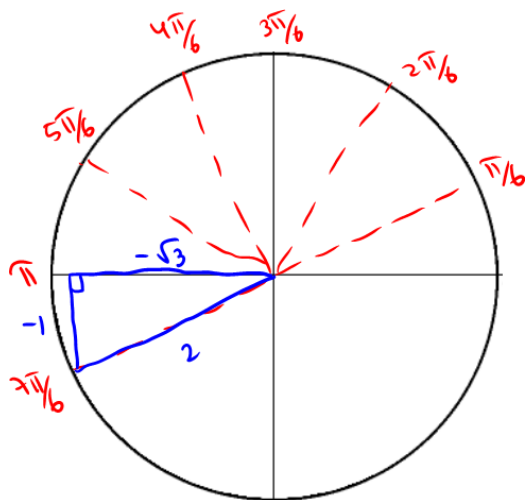
$$A = \frac{5\pi}{6} \text{ or } \frac{11\pi}{6}$$

3. Solve for θ if $\cos \theta = \frac{\sqrt{3}}{2}$ and $0 \leq \theta \leq 2\pi$.



$$\theta = \frac{\pi}{6} \text{ or } \frac{11\pi}{6}$$

4. Find the exact value of $\csc\left(\frac{7\pi}{6}\right)$.

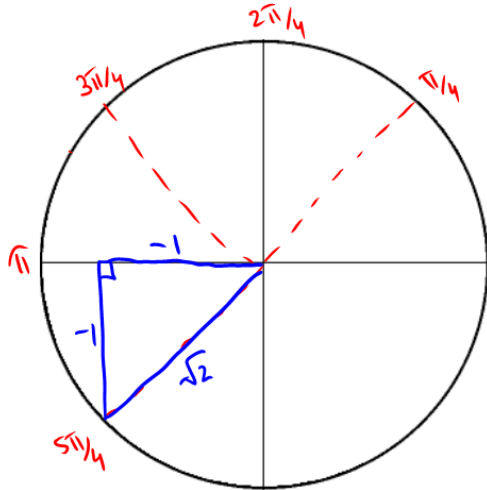


$$\csc\left(\frac{7\pi}{6}\right) = \frac{1}{\sin\left(\frac{7\pi}{6}\right)} = \frac{1}{-\frac{1}{2}} = -2$$

5. Find the exact value of $\sec\left(\frac{21\pi}{4}\right)$.

you need to find a co-terminal angle, rotating back you have

$$\frac{21\pi}{4} - 2\pi - 2\pi = \frac{5\pi}{4}$$



$$\therefore \sec\left(\frac{21\pi}{4}\right) = \sec\left(\frac{5\pi}{4}\right) = -\sqrt{2}$$

6. Find all values of θ for which $2\sin\theta - 1 = 0$ for $0 \leq \theta \leq 2\pi$.

$$2\sin\theta - 1 = 0$$

$$2\sin\theta = 1$$

$$\sin\theta = \frac{1}{2}$$

$$\theta = \frac{\pi}{6} \text{ or } \frac{5\pi}{6}$$

