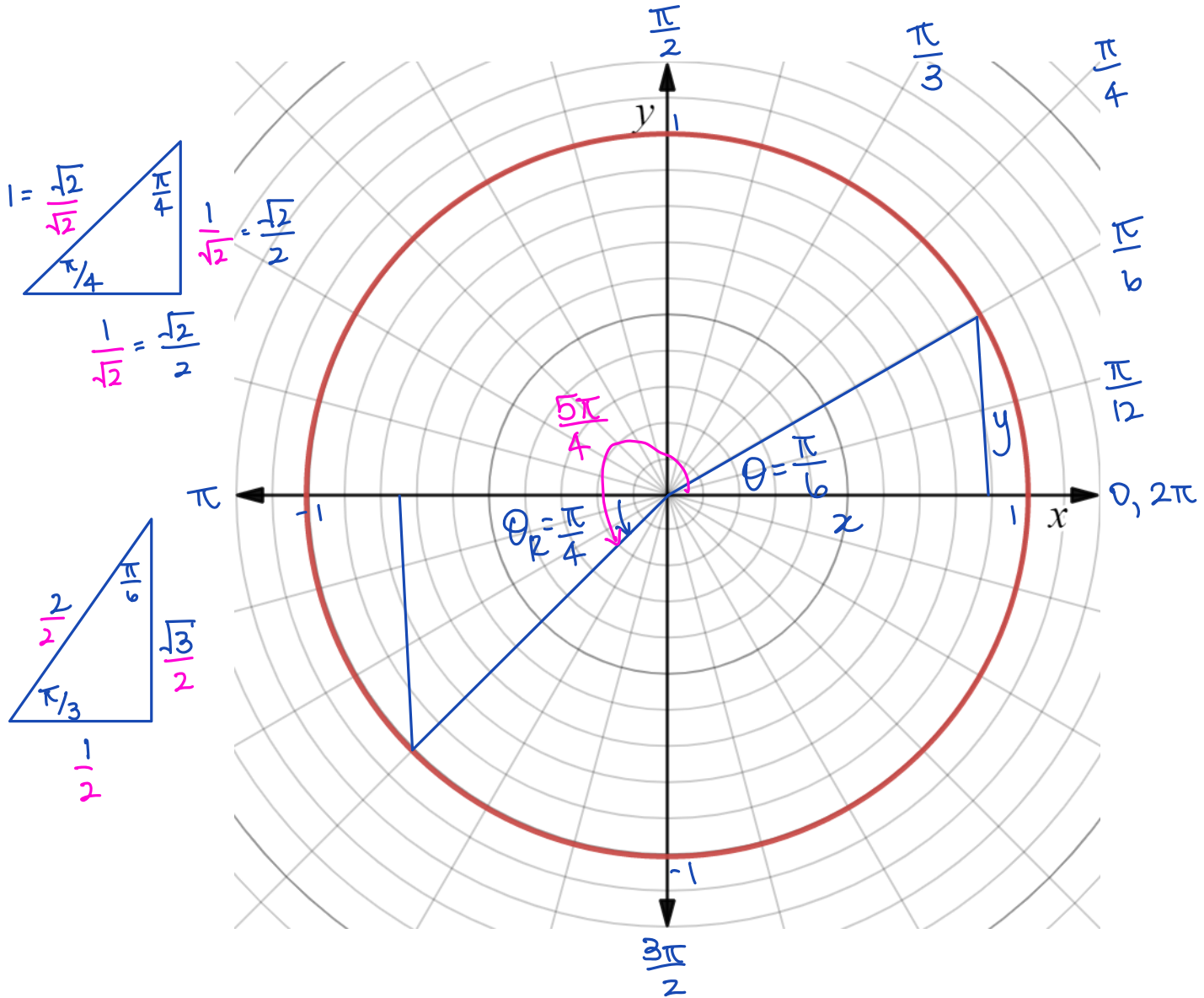


Name: _____

Date: _____

Learning Goal 0.2	Expectations for algebra from previous years.
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Recall the following trigonometric identities.

$\sin x = \frac{\text{opp}}{\text{hyp}} = \frac{y}{r}$

$\cos x = \frac{\text{adj}}{\text{hyp}} = \frac{x}{r}$

$\tan x = \frac{\text{opp}}{\text{adj}} = \frac{y}{x}$

$\csc x = \frac{1}{\sin x} = \frac{1}{y}$

$\sec x = \frac{1}{\cos x} = \frac{1}{x}$

$\cot x = \frac{1}{\tan x} = \frac{x}{y}$

Assignment

Handout

Quiz Next Day!

$$\cos \theta = \frac{x}{r}$$

Trigonometry

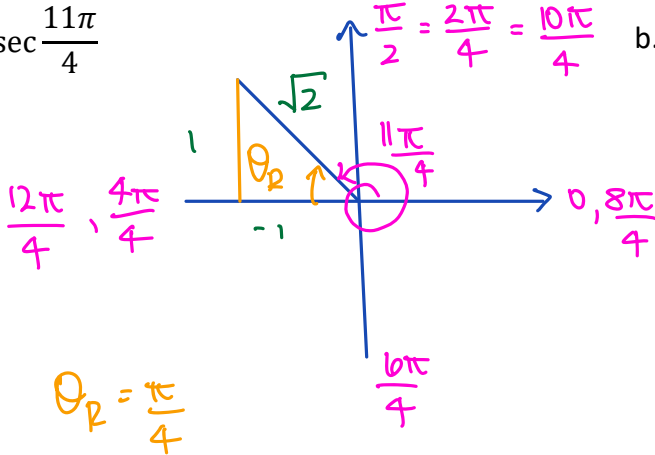


Pre - Calculus Review



Example Solve the following trigonometric equations, without a calculator.

a. $\sec \frac{11\pi}{4}$

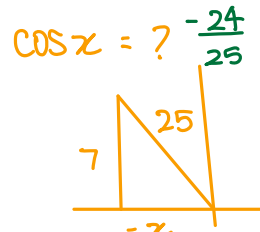
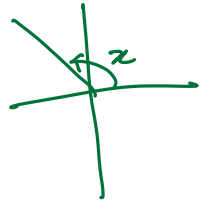


$$\cos \frac{11\pi}{4} = \frac{-1}{\sqrt{2}} \Rightarrow \sec \frac{11\pi}{4} = -\sqrt{2}$$

b. Given that $\sin x = \frac{7}{25}$, where $x \in (\frac{\pi}{2}, \pi)$,

determine the value of $\cos(\frac{\pi}{2} - x)$.

$$\begin{aligned} \cos\left(\frac{\pi}{2} - x\right) &= \cos \frac{\pi}{2} \cos x + \sin \frac{\pi}{2} \sin x \\ &= 0 \cdot \cos x + 1 \cdot \sin x \\ &= \sin x \\ &= \frac{7}{25} \end{aligned}$$



$$\begin{aligned} (-x)^2 + 7^2 &= 25^2 \\ x^2 + 49 &= 625 \\ x^2 &= 576 \\ x &= \pm 24 \end{aligned}$$

c. $\sin \frac{\pi}{8}$

$$\cos 2A = 1 - 2\sin^2 A$$

$$A = \frac{\pi}{8}$$

$$2A = \frac{2\pi}{8} = \frac{\pi}{4}$$

$$\left(\sin \frac{\pi}{8}\right)^2$$

$$\cos \frac{\pi}{4} = 1 - 2\sin^2 \frac{\pi}{8}$$

$$\frac{1}{\sqrt{2}} = 1 - 2\sin^2 \frac{\pi}{8}$$

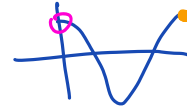
$$\begin{aligned} \frac{2\sin^2 \frac{\pi}{8}}{2} &= 1 - \frac{1}{\sqrt{2}} \\ &= \frac{\sqrt{2}-1}{\sqrt{2}} \div 2 \end{aligned}$$

$$\begin{aligned} \sqrt{\sin^2 \frac{\pi}{8}} &= \frac{\sqrt{2}-1}{2\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} \\ &= \frac{\sqrt{2}-\sqrt{2}}{4} \end{aligned}$$

$$\sin \frac{\pi}{8} = \frac{+\sqrt{2}-\sqrt{2}}{2}$$

d. $\cos^2 x - \sin^2 x = 1$ on $(0, 2\pi]$

$$\cos 2x = 1$$



$$\begin{aligned} 2x &= 2\pi \\ x &= \pi \end{aligned}$$

$$\tan x = \frac{\sin x}{\cos x}$$

Recall graphs of trigonometric functions.

