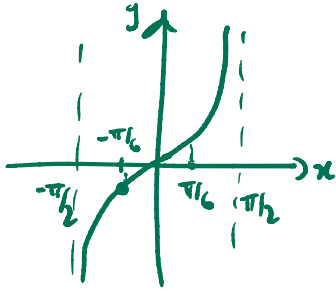


Name: Key

GTID: \_\_\_\_\_

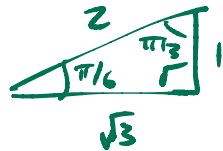
Answer the questions in the spaces provided and put your answer in the BOX. Organize work clearly and simplify answers for full credit.

1a. Evaluate:  $\tan\left(\frac{-\pi}{6}\right) = -\tan\left(\frac{\pi}{6}\right)$



$$= \boxed{-\frac{1}{\sqrt{3}}}$$

$$\boxed{-\frac{1}{\sqrt{3}}}$$

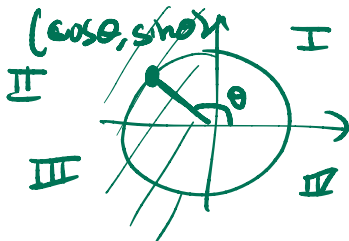


1b. In which two quadrants is  $\sec(\theta)$  negative?

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

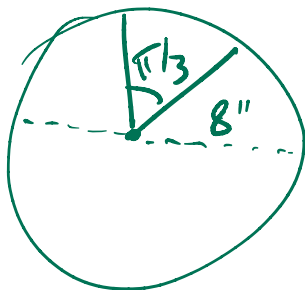
negative in quadrants

$$\boxed{\text{II, III}}$$



$$\boxed{\text{II, III}}$$

1c. If you eat a slice of pizza with a diameter of 8 inches and the slice makes a  $60^\circ$  angle, then how many square inches of pizza did you eat?



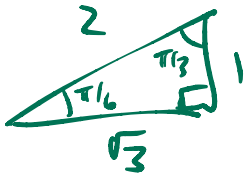
$$A = \frac{1}{2} (4)^2 * \frac{\pi}{3} = \boxed{\frac{8\pi}{3}}$$

$$\boxed{\frac{8\pi}{3}}$$

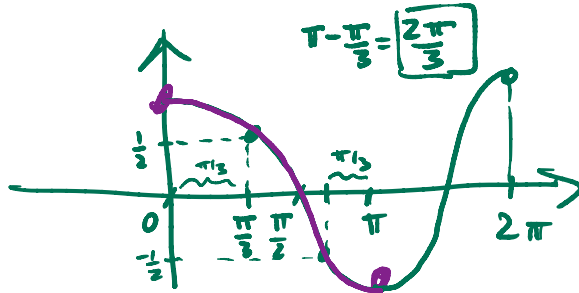
$$A = \frac{1}{2} r^2 * \theta$$

↑ radians measure

1d. Evaluate:  $\cos^{-1}(\frac{-1}{2})$ .

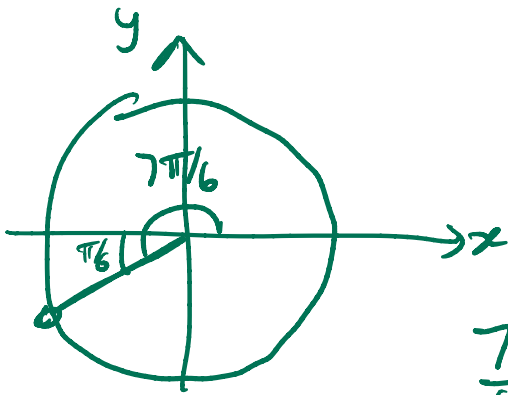


$$\cos\left(\frac{\pi}{3}\right) = \frac{1}{2}$$



$$2\pi/3$$

1e. Find the measure of the reference angle for  $\frac{7\pi}{6}$ .



$$\frac{7\pi}{6} - \pi = \boxed{\pi/6}$$

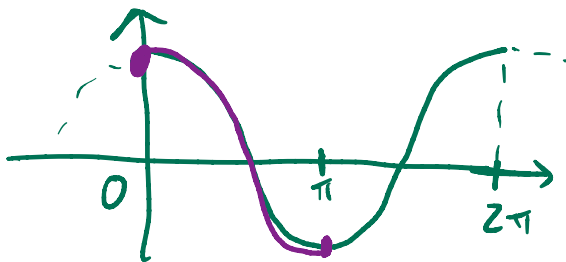
$$\pi/6$$

1f. State the range of  $f(x) = \arccos(x)$ .

$$y = \cos x \quad D: [0, \pi]$$

$$R: [-1, 1]$$

$$[0, \pi]$$

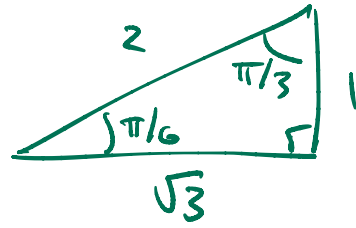


$$y = \cos^{-1}(x) \quad D: [-1, 1]$$

$$R: [0, \pi]$$

2. Find the six trigonometric values of  $\frac{\pi}{3}$ .

Note: clearly label each answer.



$$\sin \frac{\pi}{3} = \frac{\sqrt{3}}{2} \quad \csc \frac{\pi}{3} = \frac{2}{\sqrt{3}}$$

$$\cos \frac{\pi}{3} = \frac{1}{2} \quad \sec \frac{\pi}{3} = 2$$

$$\tan \frac{\pi}{3} = \sqrt{3} \quad \cot \frac{\pi}{3} = \frac{1}{\sqrt{3}}$$

3. Find all values of  $u$  so that the given point is on the unit circle  $(\frac{4}{5}, u)$ . Show work for credit.

$$\left(\frac{4}{5}\right)^2 + u^2 = 1$$

$$\text{So } \frac{16}{25} + u^2 = 1$$

$$\Rightarrow u^2 = \frac{25-16}{25} = \frac{9}{25}$$

$$\Rightarrow u = \pm \sqrt{9/25} = \pm 3/5$$

$$u = \pm 3/5$$

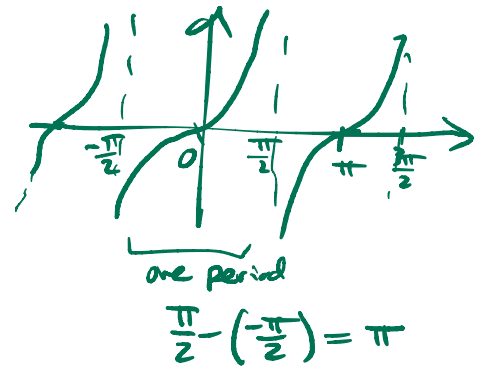
4. What is the period of  $f(x) = \tan(x - \frac{\pi}{2}) + 1$ ? Give some reasoning for your answer.

$y = f(x)$  is the graph of  $y = \tan x$  after  
being shifted to the right by  $\frac{\pi}{2}$   
and up by 1

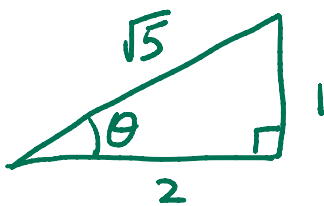
The period of  $y = f(x)$  is therefore the SAME  
as the period of  $y = \tan x$

So the period is

$$\boxed{\pi}$$



5. Evaluate:  $\cos(\tan^{-1}(\frac{1}{2}))$

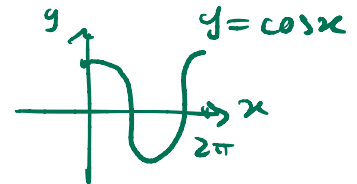
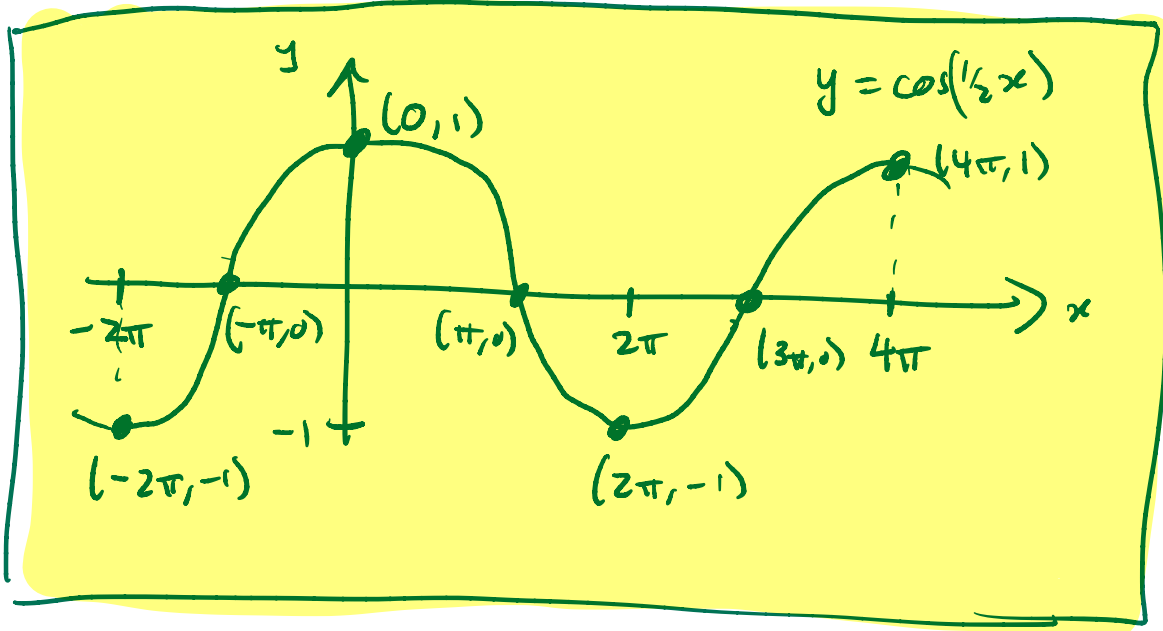


$$\tan \theta = \frac{1}{2}$$

$$\cos \theta = \boxed{\frac{2}{\sqrt{5}}}$$

For this page: label any intercepts, label the axes and the curve, and identify and include the indicated number of points with at least **two** points having non-zero  $y$ -value on your graph for full credit.

6. Graph  $f(x) = \cos(\frac{1}{2}x)$  and include all  $x$ -values in the range  $[-2\pi, 4\pi]$  in your sketch. Label the intercepts and a total of at least **six** points on the curve for full credit. At least **two** labeled points must have non-zero  $y$ -value.



7. Graph  $f(x) = \tan(x)$  and include all  $x$ -values in the range  $[-\frac{\pi}{2}, \frac{3\pi}{2}]$  in your sketch. Label the intercepts and a total of at least **four** points on the curve for full credit. At least **two** labeled points must have non-zero  $y$ -value.

