

Quiz

1. Consider an angle that measures $\frac{5\pi}{4}$ radians.

(a) Sketch the angle on a unit circle.

(b) Determine the reference angle.

$$\theta = \underline{\hspace{2cm}}$$

(c) Find $\sin \frac{5\pi}{4}$, $\cos \frac{5\pi}{4}$, $\tan \frac{5\pi}{4}$.

$$\sin \theta = \underline{\hspace{2cm}} \quad \cos \theta = \underline{\hspace{2cm}} \quad \tan \theta = \underline{\hspace{2cm}}$$

2. Find the values of the remaining five trigonometric functions of θ with the given constraint:

$$\cos \theta = \frac{3}{5}, \quad \tan \theta < 0$$

$$\sin \theta = \underline{\hspace{2cm}} \quad \cos \theta = \underline{\hspace{2cm}} \quad \tan \theta = \underline{\hspace{2cm}}$$

$$\csc \theta = \underline{\hspace{2cm}} \quad \sec \theta = \underline{\hspace{2cm}} \quad \cot \theta = \underline{\hspace{2cm}}$$

3. Use trigonometric identities to simplify the following expressions:

(a) $\frac{\tan \theta}{1 - \cos^2 \theta}$

(b) $\cos x(\tan^2 x + 1)$

4. Use the power-reducing formulas to rewrite the following expression in terms of the first power of cosine.

$$\sin^2 \theta \cos^2 \theta$$

5. Find all solutions of the following equations in the interval $[0, 2\pi)$.

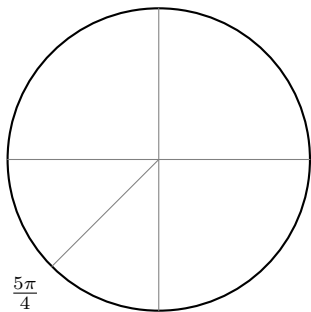
(a) $\frac{1}{2} \sec x - 1 = 0$

(b) $2 \sin 2x - \sqrt{2} = 0$

(c) $2 \cos^2 x - \cos x = 1$

Remember: The answers below are to help you check your work. The important thing is to be able to create and understand the complete solutions to these problems. Please re-read over the definitions/theorems/examples in the above notes as many times as necessary to gain a full understanding. Feel free to email your instructor or visit the MLC if you have questions. Typically on quizzes and exams the answer is worth very few points. The majority of the points are awarded on **the work** needed to get to the answer.

Answers



1. (a) $\frac{5\pi}{4}$

(b) $\theta = \frac{\pi}{4}$

(c) $\sin \frac{5\pi}{4} = \frac{-\sqrt{2}}{2}$, $\cos \frac{5\pi}{4} = \frac{-\sqrt{2}}{2}$, $\tan \frac{5\pi}{4} = 1$

2. $\sin \theta = \frac{-4}{5}$ $\cos \theta = \frac{3}{5}$ $\tan \theta = -\frac{4}{3}$

$\csc \theta = \frac{5}{-4}$ $\sec \theta = \frac{5}{3}$ $\cot \theta = \frac{3}{-4}$

3. (a) $\csc \theta \sec \theta$

(b) $\sec x$

4. $\frac{1 - \cos 4\theta}{4}$

5. (a) $x = \frac{\pi}{3}, \frac{5\pi}{3}$

(b) $x = \frac{\pi}{8}, \frac{3\pi}{8}$

(c) $x = 0, \frac{2\pi}{3}, \frac{4\pi}{3}$