

NAME: Solution

MAC 1147 Section 3077
Quiz Eight

Please show all of your work in a NEAT and ORGANIZED fashion.

1. Use the given function value and the trigonometric identities to find the indicated trigonometric functions. (Assume θ lies in Quadrant I.)

$$\sin(\theta) = \frac{1}{4}$$

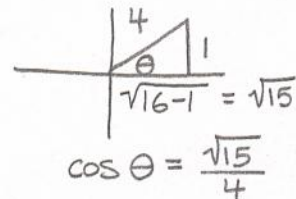
- (a) (2 points) $\cos(\theta)$

$$\sin^2(\theta) + \cos^2(\theta) = 1$$

$$\frac{1}{16} + \cos^2(\theta) = 1$$

$$\cos^2(\theta) = \frac{15}{16} \rightarrow \cos(\theta) = \frac{\sqrt{15}}{4}$$

OR



- (b) (1 point) $\tan(\theta)$

$$\tan(\theta) = \frac{\sin \theta}{\cos \theta} = \frac{1/4}{\sqrt{15}/4} = \frac{1}{\sqrt{15}}$$

2. (3 points) Find two solutions of the following equation. Give your answers in degrees AND radians.

$$\sec(\theta) = -2 \rightarrow \cos(\theta) = -\frac{1}{2}$$

Quadrant II; $\theta = \frac{2\pi}{3}, 120^\circ$

Quadrant III; $\theta = \frac{4\pi}{3}, 240^\circ$

3. (3 points) Sketch the graph of g . Include two full periods.

$$g(x) = 2 \cos(x + \pi)$$

Amplitude = 2, period = 2π

$$x + \pi = 0$$

$$x + \pi = 2\pi$$

$$x = -\pi$$

$$x = \pi$$

→ Key points:

$$(-\pi, 2), \left(-\frac{\pi}{2}, 0\right), (0, -2), \left(\frac{\pi}{2}, 0\right), (\pi, 2)$$

