MTH 162, Quiz #2, Spring 2025 Name KEY

Instructions: Show all work. Use exact answers unless specifically asked to round. Answer all parts of each question.

1. Convert the angle $\frac{16\pi}{3}$ radians to degrees.

$\frac{16\pi}{3} \cdot \frac{180}{\pi} = 960°$

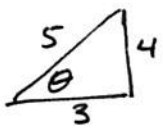
2. Find the distance between two points on the Earth's surface 40° latitude apart if the radius of the Earth is approximately 4000 miles.

$40 \cdot \frac{\pi}{180} = \frac{2\pi}{9}$

$4000 \cdot \frac{2\pi}{9} = \frac{8000\pi}{9}$

≈ 2792.5 miles

3. Find the value of each expression is $\sin\theta = \frac{4}{5}, \theta \in \left[0, \frac{\pi}{2}\right)$.



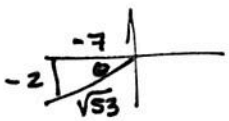
a. $\cos\theta$ $3/5$

b. $\cot\theta$ $3/4$

c. $\tan(\theta + \pi)$ $4/3$

d. $\csc(\theta - 18\pi)$ $5/4$

4. Find the value of each expression if $\tan\theta = \frac{2}{7}, \theta \in \left[\pi, \frac{3\pi}{2}\right)$.



a. $\cos\theta$ $-7/\sqrt{53}$

b. $\csc\theta$ $\sqrt{53}/2$

c. $\sec(\theta - 19\pi)$ $\frac{\sqrt{53}}{7}$

d. $\sin(-\theta)$ $\frac{2}{\sqrt{53}}$