MTH 166, Quiz #7, Fall 2017   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.

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

$$s = r\theta = 4000\left(\frac{2\pi}{9}\right) \approx 2793 \text{ miles}$$

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

✓ QI all +

a. $\cos\theta$ $\frac{3}{5}$

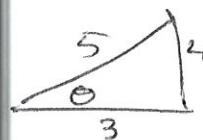b. $\cot\theta$ $\frac{3}{4}$

c. $\tan(\theta + \pi)$ $= \tan\theta = \frac{4}{3}$

d. $\csc(\theta - 18\pi)$ $= \csc\theta = \frac{5}{4}$

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

← QIII tan+

$4 + 49 = 53$

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

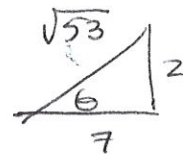b. $\csc\theta$ $-\frac{\sqrt{53}}{2}$

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

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