

Worksheet 11

Sections 6.1, 6.2, and 6.3

Section 6.1

Problem 1.

- (a) Find an angle between 0° and 360° that is coterminal with the angle $\theta = 780^\circ$.
(b) Find an angle between 0 and 2π that is coterminal with the angle $\theta = -5\pi/3$.

Problem 2.

- (a) The wheels of a car have radius 11 inches and are rotating at 600 rpm. Find the speed of the car in miles per hour.
(b) Memphis, Tennessee and New Orleans, Louisiana lie approximately on the same meridian. Memphis has a latitude of 35° N, and New Orleans has a latitude of 30° N. Find the distance between these two cities. (Hint: The radius is the earth is 3960 miles).

Section 6.2

Problem 3. A 20-foot ladder leans against a building so that the angle between the ground and the ladder is 72° . How high does the ladder reach on the building?

Problem 4. When the moon is exactly half full, the earth, moon, and sun form a right angle. At that time the angle formed by the sun, earth, and moon is measure to be approximately 90° . If the distance from the earthn to the moon is 240,000 miles, estimate the distance from the earth to the sun.

Section 6.3

Problem 5. Find the exact values of the following trigonometric functions:

$$(a) \sec(120^\circ), \quad (b) \tan\left(-\frac{4\pi}{3}\right), \quad (c) \csc\left(\frac{5\pi}{4}\right).$$

Problem 6. Find the quadrant in which θ lies from the information given: $\csc(\theta) > 0$ and $\cos(\theta) < 0$.