First Name:_____ Last Name: _____ Student ID: _____

Trigonometric Functions (1)

1. Convert the following radian measures to degrees and degree measures to radians.

Radian	Degree
$\frac{-5\pi}{6}$	
	120°
8π	
	−315°
4	
	585°

2. A sector has a radius of 12 cm and a central angle of 65°. Determine

a. the measure of the central angle in radians,

b. the area of the sector, and

c. the perimeter of the sector

3. Determine the principal angle for the following angles.

a. 540°

b. $\frac{13\pi}{6}$

c. $-\frac{19\pi}{4}$

4. Determine all coterminal angles that lie in the interval $-4\pi \leq \vartheta \leq 4\pi$, for the following angles.

a. $\frac{3\pi}{2}$

b. $-\frac{5\pi}{3}$

5. Determine the exact value of the following

a. sin(300°)

b. tan(−135°)

c. csc(150°)

d. sec(45°)

e. cos($\frac{4\pi}{3}$)

f. sin($-\frac{3\pi}{4}$)

g. cot($-\frac{11\pi}{6}$)

h. cos($\frac{15\pi}{2}$)

6. If $\tan(\theta) = \frac{1}{\sqrt{3}}$ and $\pi \leq \theta \leq 2\pi$, determine the values of $\sin(\theta)$ and $\sec(\theta)$.

7.

a. If $\csc(\theta) = 2$ and $\tan(\theta) < 0$, determine the exact value of $\cos(\theta)$.

b. If $\sec(\theta) = \frac{13}{5}$ and $0 \leq \theta \leq 2\pi$, determine the exact value(s) of $\sin(\theta)$.

8.

a. Sketch the graph of $y=\cos(x)$ for $-\pi \leq x \leq 3\pi$.

b. Identify the two local maximum points on this graph. Label these two points A and B.

c. Let point P be any other point on the graph of $y=\cos(x)$. Determine the largest possible area of $\triangle ABP$.