

MATH 181 CHAPTER 3 /4

(2 pts)

name _____

Show all work to receive full credit.

I. Convert each to “ ” radians and decimal radians. (5 pts ea)

1. 150°

2. -120°

II. Convert each radian measure to degrees. (5 pts ea)

1. $\frac{5\pi}{3}$

2. 2.5

III. Find the reference angle for each and find the six trig functions (find exact values without a calculator). (1 pt ea)

1. $\theta = 315^\circ$

2. $\theta = \frac{5\pi}{6}$

$\hat{\theta} =$ _____

$\hat{\theta} =$ _____

$\sin\theta =$ _____

$\sin\theta =$ _____

$\cos\theta =$ _____

$\cos\theta =$ _____

$\tan\theta =$ _____

$\tan\theta =$ _____

$\csc\theta =$ _____

$\csc\theta =$ _____

$\sec\theta =$ _____

$\sec\theta =$ _____

$\cot\theta =$ _____

$\cot\theta =$ _____

IV. A windmill has a radius of 5 feet and makes 10 revolutions per minute. (5 pts ea)

1. What is the angular velocity of one of the arms of the windmill?

2. What is the linear velocity of the tip of one of the arms of the windmill?

3. What is the area of the sector swept by an arm of the windmill in one second?

4. What is the length of the arc swept by an arm of the windmill in one second?

V. Sketch the graphs of the following functions for one period and find its: (7 pts ea)
a. amplitude b. period c. phase shift

1. $y = 3\sin 2x - \frac{\pi}{2}$

2. $y = -\cos \frac{x}{2} - \pi$

VI. Sketch the graph of one period for the following. (5 pts ea)

1. $y = 3\sec 2x - \frac{\pi}{2}$

2. $y = \tan \frac{x}{2} - \frac{\pi}{4}$

VII. Evaluate without using a calculator and write your answer in radians. (4 pts ea)

1. $\sin^{-1} \frac{\sqrt{3}}{2}$

2. $\tan^{-1} \frac{-1}{\sqrt{3}}$

3. $\cos^{-1}(-1)$

VIII. Find an equivalent expression that involves only x. (4 pts ea)

1. $\sin(\sin^{-1} x)$

2. $\tan \sin^{-1} \frac{1}{x}$