

Precalculus Review Unit 5 page 1 \_\_\_\_\_

No calculators are to be used on any part of this review.

Simplify each of the following. Show your steps neatly organized.

1.  $(\sin x)(\cot x) = \underline{\hspace{2cm}}$

2.  $(\tan x)(\sin x) + \cos x = \underline{\hspace{2cm}}$

3.  $\frac{\tan x}{\sec x - \cos x} = \underline{\hspace{2cm}}$

4.  $\sin^2 x(\cot^2 x + 1) = \underline{\hspace{2cm}}$

5.  $\sin\left(x + \frac{\pi}{2}\right) = \underline{\hspace{2cm}}$

6.  $\cos(\pi - x) = \underline{\hspace{2cm}}$

Prove each of the following. Show your steps neatly organized.

7.  $\frac{\cos x}{1 + \sin x} = \sec x - \tan x$

8.  $\tan(u - v) = \frac{\tan u - \tan v}{1 + (\tan u)(\tan v)}$

## Precalculus Review Unit 5 page 2

Find all solutions of the following equations.

9.  $2\cos x + 1 = 0$

10.  $3\tan^2 x - 1 = 0$

Find all solutions of the following equations in the interval  $[0, 2\pi)$ . Show your work neatly organized.

11.  $2\sin^2 x + \cos x = 2$

12.  $2\csc x + \sin x = 1$

13.  $\cos 2x = \sin x + 1$

14.  $\sin 2x = \cos x$

## Precalculus Review Unit 5 page 3

Use an appropriate sum or difference formula to find the exact value of each of the following. Show your work neatly organized.

15.  $\cos 75^\circ =$

16.  $\sin\left(\frac{\pi}{12}\right) =$

Find the exact value of each of the following. Show your work neatly organized.

17.  $\sin(2\arcsin(0.6))$

18.  $\cos(2\arcsin(0.6))$

## Precalculus Review Unit 5 page 4

Use the given information to find the exact value of each of the following. Show your work neatly organized.

Given:  $\cos u = 12/13$  ;  $1.5\pi < u < 2\pi$   
 $\sin v = -3/5$  ;  $1.5\pi < v < 2\pi$

19.  $\sin u =$

20.  $\cos v =$

21.  $\sin(u + v) =$

22.  $\cos(u + v) =$