

Precalculus Review Chapter 6 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. $\tan(u - v) = \frac{\tan u - \tan v}{1 + (\tan u)(\tan v)}$

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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. $\sin 2x = \cos x$

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

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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. $\cos(u + v) =$