

Name: _____ Mod: _____

Algebra 2/ Trig Honors Chapter 5 Test Parts 1 and 2 Review

Verify each identity. Please make sure you show each and every step. If I cannot see how you got from one step to the next, you will lose points because I will not be able to see the validity in your process. **(On your test, you will have to PICK 7 and circle them so I know which you want graded)**

Part 1 of your test would be #s 1-10

1. $\cos^2(x) + \cos^2(x) \tan^2(x) = 1$

2. $\frac{1}{1-\sin(x)} + \frac{1}{1+\sin(x)} = 2 \sec^2(x)$

3. $\tan(x) \csc(x) = \sec(x)$

4. $\frac{\tan^2(x)+1}{1+\cot^2(x)} = \tan^2(x)$

5. $\frac{2 \sin^2(x)-1}{\sin(x) \cos(x)} = \tan(x) - \cot(x)$

6. $\sin(x)[\csc(x) - \sin(x)] = \cos^2(x)$

7. $\frac{1-\sin^2(x)}{\csc^2(x)-1} = \sin^2(x)$

8. $\tan^2(x) - \tan^2(x) \sin^2(x) = \sin^2(x)$

$$9. \frac{\sin(x)}{1-\cos(x)} + \frac{1-\cos(x)}{\sin(x)} = 2 \csc(x)$$

$$10. \cos(x) + \sin(x) \tan(x) = \sec(x)$$

Find the exact value of each.

$$11. \sin(75^\circ)$$

$$12. \sin(330^\circ) \cos(30^\circ) - \cos(330^\circ) \sin(30^\circ)$$

$$13. \text{ Use } \sin u = \frac{-7}{25} \text{ and } \cos v = \frac{-4}{5}, \text{ } A \text{ and } B \text{ are in Quadrant III to find the exact value of } \cos(u - v)$$

Solve each of the following on the interval $[0, 2\pi)$. (On your test, you will have to PICK 5 and circle them so I know which you want graded)

14. $2 \sin(x) + \sqrt{2} = 0$

15. $\csc^2(x) - \sqrt{2} \csc(x) = 0$

16. $\sin(2x) + \sin(x) = 0$

17. $2 \cos^2(x) - 3 \cos(x) + 1 = 0$

18. $\cos(2x) + \cos(x) = 0$

19. $4 \sin^2(x) = 3$

20. $2 \sin^2(x) + \sin(x) = 0$

Given formulas:

$$\sin 2u = 2 \sin u \cos u$$

$$\begin{aligned}\cos 2u &= \cos^2 u - \sin^2 u \\ &= 2 \cos^2 u - 1 \\ &= 1 - 2 \sin^2 u\end{aligned}$$

$$\tan 2u = \frac{2 \tan u}{1 - \tan^2 u}$$

$$\sin(u + v) = \sin u \cos v + \cos u \sin v$$

$$\sin(u - v) = \sin u \cos v - \cos u \sin v$$

$$\cos(u + v) = \cos u \cos v - \sin u \sin v$$

$$\cos(u - v) = \cos u \cos v + \sin u \sin v$$

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

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