Secondary 2H **Name**_____ **Desk** _____

Unit 9 **Sum and Difference Angles** **Score** _____

Find the following values using the sum and difference identities. (NO CALCULATORS).

1. $\cos 15°$

2. $\tan 75°$

3. $\tan 15°$

4. $\sin 165°$

5. $\cos(-15°)$

6. $\sin(285°)$

Using the trig identities, write the following expressions as the sine or cosine of an angle.

7. $\sin 42° \cos 17° - \cos 42° \sin 17°$

8. $\cos 94° \cos 18° + \sin 94° \cos 18°$

9. $\sin 36° \cos 90° + \sin 90° \cos 36°$

10. $\sin 60° \cos 25° - \sin 25° \cos 60°$

11. $\frac{\tan 36° - \tan 60°}{1 + \tan 36° \tan 60°}$

12. $\frac{\tan 19° + \tan 47°}{1 - \tan 19° \tan 47°}$

Verify the following using trig identities. Use a separate piece of paper to show your work. (No work, no credit!)

13. $\tan x \sin x + \cos x = \sec x$

14. $\frac{1}{\tan x} + \tan x = \frac{1}{\sin x \cos x}$

15. $\sin x - \sin x \cos^2 x = \sin^3 x$

16. $\tan^2 x = \csc^2 x \tan^2 x - 1$

17. $1 - 2\cos^2 x = \frac{\tan^2 x - 1}{\tan^2 x + 1}$

18. $\tan^2 x - \sin^2 x = \tan^2 x \sin^2 x$

Prove the following identities. (HINT: Use the sum/difference angle identities.) Use a separate piece of paper to show your work. (No work, no credit!)

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

20. $\sin(x - 90°) = -\cos x$

21. $\tan(x - 90°) = -\cot x$

22. $\cos(x - 90°) = \sin x$