Advanced Alg./Trig **NAME**_____
Chapter 6 Review #2

Find the following using trigonometric identities. Assume θ is in Quadrant I.

1. If $\sin\theta = \frac{3}{4}$, find $\sec\theta$.
2. If $\sec\theta = 3$, find $\tan\theta$.
3. If $\tan\theta = 4$, find $\sin\theta$.
4. If $\csc\theta = \frac{5}{3}$, find $\cos\theta$.

Simplify.

5. $\dfrac{\cos x \bullet \csc x}{\tan x}$
6. $\sin^2 x \bullet \cot x \bullet \sec x$

Verify the following identities.

7. $\tan\theta(\cot\theta + \tan\theta) = \sec^2\theta$
8. $\dfrac{\sec\theta}{\csc\theta} = \tan\theta$
9. $\dfrac{\sin\theta}{1-\cos\theta} = \csc\theta + \cot\theta$
10. $\sec\theta - \cos\theta = \sin\theta\tan\theta$

Find the exact value using sum/difference or half angle identities.

11. $\tan 15°$
12. $\cos 75°$

If a and b are measures of two first quadrant angles, find the exact value of each function.

13. If $\sin a = \frac{3}{5}$ and $\cos b = \frac{7}{25}$, find $\cos(a - b)$
14. If $\cos a = \frac{12}{13}$ and $\sin b = \frac{8}{17}$, find $\tan(a - b)$
15. If $\csc a = \frac{5}{3}$ and $\sec b = \frac{13}{5}$, find $\sin(a + b)$

If $\sin A = \frac{5}{13}$ and $\measuredangle A$ is an angle in quadrant I, find the exact value.

16. $\sin\frac{A}{2}$
17. $\cos 2A$
18. $\tan 2A$

Solve for exact values of θ such that $0 \leqslant \theta < 2\pi$.

19. $2\cos^2\theta - 1 = 0$
20. $2\cos^2\theta = 3\cos\theta + 2$
21. $2\sin^2 x + \sin x = 0$
22. $2\cos\theta = \sqrt{3}$

Write the expression as the sine, cosine, or tangent of an angle.

23. $\cos 13°\cos 40° - \sin 13°\sin 40°$
24. $\dfrac{2\tan 44°}{1-\tan^2 44°}$