

Advanced Alg./Trig  
Chapter 6 Review #2

NAME \_\_\_\_\_

Find the following using trigonometric identities. Assume  $\theta$  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.  $\frac{\cos x \cdot \csc x}{\tan x}$

6.  $\sin^2 x \cdot \cot x \cdot \sec x$

Verify the following identities.

7.  $\tan \theta (\cot \theta + \tan \theta) = \sec^2 \theta$

8.  $\frac{\sec \theta}{\csc \theta} = \tan \theta$

9.  $\frac{\sin \theta}{1 - \cos \theta} = \csc \theta + \cot \theta$

10.  $\sec \theta - \cos \theta = \sin \theta \tan \theta$

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

11.  $\tan 15^\circ$

12.  $\cos 75^\circ$

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  $\angle A$  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  $\theta$  such that  $0 \leq \theta < 2\pi$ .

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.  $\cos 13^\circ \cos 40^\circ - \sin 13^\circ \sin 40^\circ$

24.  $\frac{2 \tan 44^\circ}{1 - \tan^2 44^\circ}$

Answer Key for Ch 6 Review #2

1.  $\sec \theta = \frac{4\sqrt{7}}{7}$

2.  $\tan \theta = 2\sqrt{2}$

3.  $\sin \theta = \frac{4\sqrt{17}}{17}$

4.  $\cos \theta = \frac{4}{5}$

5.  $\cot^2 x$

6.  $\sin x$

11.  $2 - \sqrt{3}$

12.  $\frac{\sqrt{6} - \sqrt{2}}{4}$

13.  $-\frac{\cancel{14}}{125} \frac{4}{5}$

14.  $-\frac{\cancel{140}}{171} - \frac{21}{220}$

15.  $\frac{63}{65}$

16.  $\frac{\sqrt{26}}{26}$

17.  $\frac{119}{169}$

18.  $\frac{\cancel{120}}{119}$

19.  $\theta = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

20.  $\theta = \frac{2\pi}{3}, \frac{4\pi}{3}$

21.  $x = 0, \pi, \frac{7\pi}{6}, \frac{11\pi}{6}$

22.  $\theta = \frac{\pi}{6}, \frac{11\pi}{6}$

23.  $\cos 53^\circ$

24.  $\tan 88^\circ$