

Test 3 Pretest, Chapters 5 and 6

1. For each item in Column I, give the letter of the item in Column II that is equivalent to it.

<u>Answer</u>	<u>Column I</u>	<u>Column II</u>
_____ A.	$\frac{\csc \theta}{\sec \theta}$	a. $\sec^2 \theta$
_____ B.	$\sec \theta \tan \theta \csc \theta$	b. $\tan^2 \theta$
_____ C.	$\sin \theta \cot \theta + \cos \theta$	c. $\sin(2\theta)$
_____ D.	$\frac{2 \tan \theta}{\sec^2 \theta}$	d. $\cos \theta$
_____ E.	$(\sec \theta - 1)(\sec \theta + 1)$	e. $2 \cos \theta$
_____ F.	$\sec \theta - \tan \theta \sin \theta$	f. $\sin^2 \theta$
		g. $\csc \theta$
		h. $\cos^2 \theta$
		i. $\cot \theta$
		j. $\cos(2\theta)$

2. Using the sum, difference, double angle, or half angle formulas, evaluate the following.

a) $\cos(35^\circ) \cos(115^\circ) - \sin(35^\circ) \sin(115^\circ)$ **b)** $1 - 2\sin^2\left(\frac{3\pi}{8}\right)$

c) $\cos\left(\frac{5\pi}{12}\right) \sin\left(\frac{\pi}{12}\right) - \sin\left(\frac{5\pi}{12}\right) \cos\left(\frac{\pi}{12}\right)$ **d)** $\sin(105^\circ) \cos(105^\circ)$

3. Given that $\sec\theta = \frac{5}{3}$ and $270^\circ < \theta < 360^\circ$, evaluate the following.

a) $\cos(2\theta)$

b) $\sin(2\theta)$

4. Prove each identity.

a) $(1 - \cos^2\theta)(1 + \cot^2\theta) = 1$

b) $\frac{\cot\theta \tan\theta - \cos^2\theta}{\cos\theta \tan\theta} = \sin\theta$

c) $\frac{\sec\theta}{\sec^2\theta - 1} = \cot\theta \csc\theta$

d) $\frac{\sin\theta}{1 - \cos\theta} = \csc\theta + \cot\theta$

5. Find all radian solutions for x .

a) $\sec x = -2$

b) $\cot x = \sqrt{3}$

6. Find all degree solutions for θ .

a) $\csc\theta = \sqrt{2}$

b) $\tan\theta = -1$

7. Solve the equation for $0 \leq x < 2\pi$.

$$2 \cos^2 x - 1 = 0$$

8. Solve the equation for $0^\circ \leq \theta < 360^\circ$.

$$2 \cos^2 \theta + 5 \sin \theta + 1 = 0$$

Section 6.3

9. Solve the equation for $0 \leq x < 2\pi$.

$$2 \cos(3x) - \sqrt{3} = 0$$

10. Solve the equation for $0^\circ \leq \theta < 360^\circ$.

$$2 \cos \theta \sin \theta = \frac{\sqrt{3}}{2}$$

- 11.** Find all degree solutions for θ .

$$\csc(4\theta) = 1$$

- 12.** Find all radian solutions for x .

$$\sqrt{3} \cot(3x) - 1 = 0$$