

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

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

- |   |  |
|---|--|
| <p><b>a)</b> <math>\cos(35^\circ) \cos(115^\circ) - \sin(35^\circ) \sin(115^\circ)</math></p> <p><b>c)</b> <math>\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)</math></p> | <p><b>b)</b> <math>1 - 2\sin^2\left(\frac{3\pi}{8}\right)</math></p> <p><b>d)</b> <math>\sin(105^\circ) \cos(105^\circ)</math></p> |
|---|--|

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

- |   |   |
|---|---|
| <p><b>a)</b> <math>\cos(2\theta)</math></p> | <p><b>b)</b> <math>\sin(2\theta)</math></p> |
|---|---|

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  $\theta$ .

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  $\theta$ .

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

12. Find all radian solutions for  $x$ .

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