NAME _____ DATE _____ PERIOD _____

5 Chapter 5 Mid-Chapter Test

SCORE _____

(Lessons 5-1 through 5-3)

Part I **Write the letter for the correct answer in the blank at the right of each question.**

1. Solve the equation $2 \cos x - \sec x = 1$ on the interval $[0, 2\pi)$.

A $0, \frac{2\pi}{3}$ **C** $0, \frac{2\pi}{3}, \frac{4\pi}{3}$

B $0, \frac{\pi}{6}, \frac{5\pi}{6}$ **D** $0, \frac{\pi}{2}, \frac{3\pi}{2}$ **1.** _____

2. Which of the following is a solution for the equation $\tan x \cos x = \frac{1}{2}$?

F $0 + \frac{\pi}{3}n$, where n is an integer **H** $0 + \frac{\pi}{6}n$, where n is an integer

G $\frac{\pi}{6} + 2n\pi$, where n is an integer **J** $\frac{\pi}{3} + \frac{\pi}{2}n$, where n is an integer **2.** _____

3. Which of the following is *not* equal to $\sec \theta$?

A $\csc (90 - \theta)$ **B** $\sec (-\theta)$ **C** $-\tan \theta$ **D** $\sqrt{1 + \tan^2 \theta}$ **3.** _____

4. Which of the following is an identity?

F $\frac{\tan^2 x}{1 + \sec x} = \sec x + 1$ **H** $\sin^2 x - 2 = -\sin x$

G $\tan x + \cot x = \csc x$ **J** $2 \sin^2 x - 1 = 1 - 2\cos^2 x$ **4.** _____

5. **CONSTRUCTION** An electrician is carrying a ladder horizontally around a corner from one hallway to another. One hallway is a foot wider than the other. If $\theta = 30°$, find the exact length of the ladder.

A $8 + 2\sqrt{3}$ **B** $6\sqrt{3}$ **C** 12 **D** $\frac{18 + 8\sqrt{3}}{3}$ **5.** _____

Part 2

6. If $\csc A = 2$, find the value of $\sin A$. **6.** _____

7. If $\tan \theta = -\frac{3}{4}$ and $90° < \theta < 180°$, find $\cos \theta$. **7.** _____

8. Simplify $\csc x - \cos x \cot x$. **8.** _____

9. Solve $\tan x \csc x = 2$. **9.** _____

10. Verify that $\frac{\csc \theta \tan \theta}{1 + \tan^2 \theta} = \cos \theta$.

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