

Trig Identities Puzzle**Directions:** Simplify each trig expression. Show all work.

Find your answer at the bottom of the page. Write the letter associated with your answer in the box that contains the question number. You may use answers more than once.

1. $\csc \theta \tan \theta$

7. $\sin \theta \csc \theta - \cos^2 \theta$

2. $\sin \theta + \cot \theta \cos \theta$

8. $\sec \theta - \sin \theta \tan \theta$

3. $\csc^2 \theta - \cot^2 \theta$

9. $(\csc \theta + 1)(\csc \theta - 1)$

4. $\sec^2 \theta - \cos^2 \theta \sec^2 \theta$

10. $\frac{\sin \theta}{\cos \theta \tan \theta}$

5. $\sin^2 \theta + \cos^2 \theta + \tan^2 \theta$

11. $(\csc \theta + \cot \theta)(1 - \cos \theta)$

6. $\cos \theta (1 + \tan^2 \theta)$

12. $(\tan^2 \theta - \sec^2 \theta)(\sin^2 \theta + \cos^2 \theta)$

E. $\sec \theta$ N. $\csc \theta$

S. 1

X. -1

R. $\cos \theta$ H. $\tan^2 \theta$ O. $\sin^2 \theta$ T. $\cot^2 \theta$ U. $\sin \theta$ I. $\sec^2 \theta$

On October 4, 2006 Akira Haraguchi broke his own record by reciting the number pi to 100,000 decimal places.

It took him over

3	5	12	9	1	6	2		4	7	11	8	10

to complete the task.

Precalculus

Chapter 5 Extra Practice

Name _____

Find all solutions for each of the equations in #1 and #2.

1. $\sin x + \sqrt{2} = -\sin x$

2. $3 \tan^2 u - 1 = 0$

Find all solutions from $[0, 2\pi)$ for #3 and #4.

3. $2 \sin^2 x - \sin x - 1 = 0$

4. $\sec x \csc x = 2 \csc x$

5. Find the exact value of $\cos 285^\circ$ using the fact that $285^\circ = 330^\circ - 45^\circ$.

6. Simplify $\sin 8u \cos 3u + \cos 8u \sin 3u$

7. Verify the following identity: $\cos\left(\frac{\pi}{2} - x\right) = \sin x$

8. Find all solutions of $2 \cos x + \sin 2x = 0$

9. Use the following to find $\sin 2\theta$, $\cos 2\theta$, and $\tan 2\theta$:

$$\cos \theta = \frac{5}{13} \quad \text{and} \quad \frac{3\pi}{2} < \theta < 2\pi$$

10. Finish the following formula three different ways:

$$\cos 2u =$$

$$\cos 2u =$$

$$\cos 2u =$$