Chapter 6 Trig Identity review Name_____

1. What is the Pythagorean identity? $\cos^2\theta + \sin^2\theta = 1$

2. Use the Pythagorean identity to derive two other fundamental identities. Make sure to show your work.

$$\frac{\cos^2\theta}{\cos^2\theta} + \frac{\sin^2\theta}{\cos^2\theta} = \frac{1}{\cos^2\theta}$$

$$1 + \tan^2\theta = \sec^2\theta$$

$$\frac{\cos^2\theta}{\sin^2\theta} + \frac{\sin^2\theta}{\sin^2\theta} = \frac{1}{\sin^2\theta}$$

$$\cot^2\theta + 1 = \csc^2\theta$$

3. Name all of the even/odd identities for the trig functions:

$\sin(-\theta) = -\sin\theta$ $\csc(-\theta) = -\csc\theta$

$\cos(-\theta) = \cos\theta$ $\sec(-\theta) = \sec\theta$

$\tan(-\theta) = -\tan\theta$ $\cot(-\theta) = -\cot\theta$

4. Write down the 3 periodic identities: $\sin(\theta \pm 2n\pi) =$

$\cos(\theta \pm 2n\pi) =$

$\tan(\theta \pm n\pi) =$

Use your Trigonometric identities to find the value of the following:

5. $sin^2 40° + \frac{1}{sec^2 40°}$

$\sin^2 40 + \cos^2 40 = 1$

6. $\sec 55° \cos 55°$

$\frac{1}{\cos 55} \cdot \cos 55 = 1$

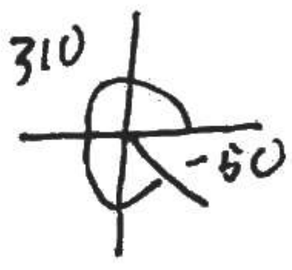
7. $\frac{\cos(-40°)}{\cos 40°} = 1$

$\frac{\cos 40}{\cos 40}$

8. $\frac{\sin(-40°)}{\sin 40°} = -1$

$\frac{-\sin 40}{\sin 40}$

9. $\sin 310° \csc(-50°) = 1$



$\sin(-50) \cdot \frac{1}{\sin -50}$

$-\sin 50 \cdot \frac{1}{-\sin 50}$

10. $\cos(540°) - \tan(-405°)$

$\cos 180$

$-1 + 1 =$

0

11. $\cot^2\theta - \csc^2\theta + 1 = 0$

$\cot^2\theta + 1 - \csc^2\theta$

$\csc^2\theta - \csc^2\theta$

12. $\tan^2\theta - 1 - \frac{1}{\cos^2\theta}$

-2

$\tan^2\theta - 1 - (\sec^2\theta)$

$\tan^2\theta - 1 - (1 + \tan^2\theta)$

$\tan^2\theta - 1 - 1 - \tan^2\theta$

-2