

Verifying Trig Identities  
with Double & Half Angles

Name \_\_\_\_\_

First, some extra practice with writing each expression as a single trig function.

Write each expression in terms of a single trigonometric function.  
(BTW ... All angles below are radians, but that doesn't change your thought process!)

1.  $2 \sin 0.6 \cos 0.6$

2.  $2 \sin 3 \cos 3$

3.  $2 \sin 2 \cos 2$

4.  $\cos^2 0.45 - \sin^2 0.45$

5.  $2 \cos^2 5 - 1$

6.  $1 - 2 \sin^2 3$

7.  $2 \sin \frac{\pi}{6} \cos \frac{\pi}{6}$

8.  $\cos^2 \frac{\pi}{10} - \sin^2 \frac{\pi}{10}$

Verify each identity:

9.  $1 + \sin 2\theta = (\sin \theta + \cos \theta)^2$

10.  $\sin 2\theta = 2 \cot \theta \sin^2 \theta$

11.  $\cos 2\theta = \frac{1 - \tan^2 \theta}{1 + \tan^2 \theta}$

12.  $\sec^2 \theta = \frac{2}{1 + \cos 2\theta}$

13.  $\frac{1 - \cos 2\theta}{2} = \sin^2 \theta$

14.  $\frac{\sin^2 \theta + \cos^2 \theta}{\sin^2 \theta - \cos^2 \theta} = -\sec 2\theta$

15.  $\frac{(\sin \theta + \cos \theta)^2}{\sin 2\theta} = \csc 2\theta + 1$

Answers:

1.  $\sin 1.2$     2.  $\sin 6$     3.  $\sin 4$     4.  $\cos 0.9$

5.  $\cos 10$     6.  $\cos 6$     7.  $\sin \frac{\pi}{3}$     8.  $\cos \frac{\pi}{5}$