Verifying Trig Identities   Name _____
with Double & Half Angles

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. $2\sin2\cos2$ 4. $\cos^2 0.45 - \sin^2 0.45$

5. $2\cos^2 5 - 1$ 6. $1 - 2\sin^2 3$

7. $2\sin\dfrac{\pi}{6}\cos\dfrac{\pi}{6}$ 8. $\cos^2\dfrac{\pi}{10} - \sin^2\dfrac{\pi}{10}$

Verify each identity:

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

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

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

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

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

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

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

Answers:

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

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