Multiple Angle Identities 2-25-08

1. Prove the identity.

$$\sin 2u = 2\sin u \cos u$$

2. Find all solutions to the equation in the interval $[0, 2\pi)$.

$$\cos 2x = \cos x$$

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3. Prove the identity.

$$\sin 3x = (\sin x)(3 - 4\sin^2 x)$$

4. Solve algebraically for exact solutions in the interval $[0, 2\pi)$. Support with your grapher.

$$\sin 3x + \cos 2x = 0$$

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5. Use half-angle identities to find an exact value without a calculator.

$$\sin\left(\frac{5\pi}{12}\right)$$

6. Use the power-reducing identities to prove the identity.

$$\cos^3 x = \left(\tfrac{1}{2}\cos x\right)\left(1+\cos 2x\right)$$