**Find the exact values of sin 2θ, cos 2θ, and tan 2θ for the given values of θ.**

1. cos θ = $\frac{3}{5}$; 0° < θ < 90° 2. sec θ = -3; 90° < θ < 180°

**Find the exact values of sin (θ/2), cos (θ/2) and tan (θ/2) for the given conditions.**

3. sec θ = $\frac{5}{4}$; 0° < θ < 90° 4. tan θ = 1; -180° < θ < -90°

**Use half-angle formulas to find the exact values.**

5. (a) cos 67°30' (b) sin 15° (c) tan $\frac{3π}{8}$

**Verify the identity.**

6. sin 10θ = 2 sin 5θ cos 5θ 7. 4 sin $\frac{x}{2}$ cos $\frac{x}{2}$ = 2 sin x 8. (sin t + cos t)2 = 1 + sin 2t

**Find the solutions of the equation that are in the interval [0, 2π).**

9. sin 2t + sin t = 0 10. cos u + cos 2u = 0 11. tan 2x = tan x

**Use the graph of f to find the simplest expression g(x) such that the equation f(x) = g(x) is an identity. Verify the identity.**

12. f(x) = $\frac{\sin(x (1+\cos(2x)))}{\sin(2x)}$

