**Verify the identity.**

1. csc θ - sin θ = cot θ cos θ 2.

3. 4. tan t + 2 cos t csc t = sec t csc t + cot t

5. 6.

7. (sec u - tan u)(csc u + 1) = cot u 8.

9. 10.

11. 12.

13. 14. (sec t + tan t)2 =

15. 16.

**Show that the equation is *not* an identity. (Hint: Graph ☺ and show that the left side ≠ the right side)**

17. cos t = 18. 19. (sin θ + cos θ)2 = sin2 θ + cos2 θ

**Make the trigonometric substitution x = a sin θ for -π/2 < θ < π/2 and a > 0. Use fundamental identities to simplify the resulting expression.**

20. (a2 - x2)3/2

**Make the trigonometric substitution x = a tan θ for -π/2 < θ < π/2 and a > 0. Simplify the resulting expression.**

21.

**Make the trigonometric substitution x = a sec θ for 0 < θ < π/2 and a > 0. Simplify the resulting expression.**

22.

**Find the simplest expression.**

23.