1. Find $\frac{dy}{dx}$ for each of the following.
   a) $y = \sin(e^{x \arccos(3x)})$

   b) $y = \ln(\tan(\sqrt{\log_{10}(3x)}))$

   c) $y = (x^{10} + x^2)^{\cos x}$

   d) $7^{2y} + 17 = 13 \arctan y$

2. A 10 foot long ladder is leaning against a wall. Someone starts pulling the bottom of the ladder away from the wall while the top of the ladder is still leaning against the wall, causing the top to slide down the wall. If the bottom is being pulled away at 0.5 feet per second, at what rate is the top sliding down the wall when it is 6 feet above the ground?