More on Related Rates - Worksheet

Suppose that liquid is to be cleared of sediment by pouring it through a conical filter that is 16 cm high and has a radius of 4 cm at the top. Suppose also that the liquid flows out of the cone at a constant rate of 2 cubic cm/min.

1. Do you think that the depth of the liquid will decrease at a constant rate? Give a verbal argument that justifies your conclusion.

2. Find a formula that expresses the rate of change to the depth of the liquid in terms of the depth, and use that formula to determine whether your conclusion in part 1 is correct.

3. At what rate is the depth of the liquid changing at the instant when the level is 8 cm deep?