Name_____

Show all work necessary for your answers.

1. Water is dripping from a conical water tank (with the point down) at the rate of $0.6 \ ft^3/min$. The top of the tank has diameter 42 feet, and the height of the tank is 84 feet. How fast is the radius of the cone of water in the tank changing when the water is 63 feet deep?

2. Suppose $f(x) = \sqrt[3]{x}$.   Use a linear approximation to estimate $f(26.9) = \sqrt[3]{26.9}$.

Use the differential to approximate the change in f as x changes from $x = 27$ to $x = 26.9$.