1.

The radius of a circle is increasing at a constant rate of 0.2 meters per second. What is the rate of increase in the area of the circle at the instant when the circumference of the circle is 20π meters?

a. 0.04π m²/sec   b. 0.4π m²/sec   c. 4π m²/sec   d. 20π m²/sec   e. 100π m²/sec

2.   An ice cube is melting such that its volume diminishes at a rate of 2 cm³/min. At what rate are the edges of the cube changing at the instant the cube has a volume of 8 cm³? Include units in your answer.

3. Water is poured into a conical tank at a constant rate of π ft^3 per second. The tank is 12 feet deep and measures 12 feet across at its top. At what rate is the depth of the water level increasing at the instant the water is 6 feet deep? Cone Volume: $\frac{1}{3}\pi r^2 h$ (Hint: Use similar triangles to find relationship between r and h).