

Name _____

Calculus Classwork

Implicit Differentiation and Related Rates

- 1) A kite is 75 feet high and moving **horizontally** away from the person holding it at a rate of 30 feet per second. What is the rate at which the kite string is loosening when the **direct distance** between the person and the kite is 88 feet?

- 2) A spherical snowman at the North Pole is melting due to global warming. Its volume is **decreasing** at a rate of 0.5 meters per hour. If the radius of the snowman is 4 meters, at what rate is the radius decreasing?

- 3) A cylindrical gas tank has a radius of 20 feet. The tank is punctured and begins leaking fuel at a rate of 15 cubic gallons per minute. How fast is the height of the fuel in the gas tank dropping when the height is 7 feet?