

Name: \_\_\_\_\_

## MA2 Homework 2

1. Oil spilled from a ruptured tanker spreads in a circle whose radius increases at a constant rate of 4 ft/sec. How fast is the area of the spill increasing when the radius of the circle is 100 feet? Round your answer to the nearest tenth.

2. Air is being pumped into a spherical balloon at a rate of  $100 \text{ cm}^3/\text{sec}$ . How fast is the radius of the balloon increasing when its radius is 25 centimeters?

3. If  $y = \frac{2x+1}{x}$ , find  $\frac{d^2y}{dx^2}$ .

4. If  $f(x) = \sin^2(3x^5)$ , find  $f'(x)$  in simplest form.