1. Use differentials to estimate the value of $f(x, y) = \ln(x - 3y)$ at the point (6.9, 2.01).

2. The radius of a right circular cylinder is decreasing at a rate of 1 in/s while its height is increasing at a rate of 3 cm/s. At what rate is the volume of the cylinder changing when the radius is 5 cm and the height is 10 cm.

Each problem is worth 5 pts.