**(1)[5 points]** Use a linear approximation to estimate $(8.06)^{2/3}$.

**(2)[5 points]** Compute the differential $dy$ of $y = x^2 \sin(2x)$.

**(3)**[**5 points**] The edge of a cube was found to be 30 cm with a possible error in measurement of 0.1 cm. Use differentials to estimate the maximum possible error and relative error (as a percentage) in computing the volume of the cube.