1. As a metal cube is heated, its length L increases 1%. What is the percentage increase of the volume $V = L^3$, approximately? What is the percentage increase of the surface area $S = 6L^2$, approximately?

2. Suppose your income is $60,000 and currently increasing at a rate of $4,000 per year and your debt is $100,000 and currently decreasing at a rate $8,000 per year. What is the current rate of change of your debt-to-income ratio?

3. Let $y = 3 + \sqrt{e^x + 2}$. Given a starting value of $x = 0$ and a change of $dx = \Delta x = 0.04$, find (1) the approximate change dy, (2) the exact change Δy, (3) the approximate relative change dy/y, and (4) the exact relative change $\Delta y/y$.