1. Let $f(x,y,z) = z\sin(x^2 y) + \dfrac{y^2 \log z}{x}$.

   a) $f_x(x,y,z) = 2xyz\cos(x^2 y) - \dfrac{y^2 \log z}{x^2}$

   b) $f_y(x,y,z) = x^2 z\cos(x^2 y) + \dfrac{2y \log z}{x}$

   c) $f_z(x,y,z) = \sin(x^2 y) + \dfrac{y^2}{xz}$