1. Find the local maximum and minimum values and saddle point(s) of the function $f(x, y) = x^2 + y^4 + 2xy$.

2. Find the points on the cone $z^2 = x^2 + y^2$ that are closest to the point $(4, 2, 0)$.

3. Find the side lengths of the rectangular box with volume 8m^3 that has minimal surface area.