1.) (5pts) Evaluate \( \int_0^1 \int_{\sin^{-1} y}^{\pi/2} \cos x \sqrt{1 + \cos^2 x} \, dx \, dy \).

2.) (5pts) Evaluate \( \iiint_U \sqrt{x^2 + y^2 + z^2} \, dV \), where \( U \) is the solid that lies between the spheres \( x^2 + y^2 + z^2 = 4 \), \( x^2 + y^2 + z^2 = 9 \) and above the \( xy \)-plane.