LAB 3: Finding Partial derivatives and Jacobians of functions of several variables

Write a program

1) To prove that the mixed partial derivatives, $U_{xy} = U_{yx}$ for $U=exp(x)(xcos(y)-ysin(y))$.

2) To prove that if $U=exp(x)(xcos(y)-ysin(y))$ then $U_{xx}+U_{yy} = 0$.

3) To prove that at $(1,-1,0)$, $J = 20$ if $u = x+3y^2-z^3$, $v = 4x^2yz$, $w = 2z^2- xy$.