(1) Find the integrating factor that makes the differential equation 
\[(5x^2 - xy + x^3)dx + (x^2 + yx^3)dy = 0\] exact.

(2) Solve the differential equation 
\[ydx + (1 + x)dy = \ln x \, dx.\]

(3) Solve the differential equation 
\[dy + x^2dx = x^2e^{3y}dx.\]