Q.1: Solve the initial value problem \( ydx - 2(x + y^3)dy = 0, \quad y(1) = 1 \). (Hint: write as a linear equation)

Q.2: Solve the differential equation \( \cos(x) \, dx + \left(1 + \frac{2}{y}\right) \sin(x) \, dy = 0 \) into an EXACT equation.
Q.3: Solve the differential equation \((y^2 + xy)\,dx + x^2\,dy = 0\) by transforming into a separable equation.

Q.4: Solve the differential equation \(x\,\frac{dy}{dx} + y = x^2y^2\) by transforming into a linear equation.