Q1. (3 points) Verify by substitution if $y = (C_1 + C_1 x)e^{4x}$ is a solution of $y'' - 8y' + 16y = 0$?

Q2. (3 points) $y = \frac{2}{3-4x}$ is a solution of some first order differential equation. Plot this solution and discuss the interval over which the solution is continuous.

Q3. (4 points) Solve the first order differential equation $\frac{dy}{dx} = -4xy; \quad y(0) = -2$