For the week of November 17-21

1) Solve the following initial value problems with the initial condition $y(0) = 1$.

(a) $\frac{dy}{dx} = \frac{4x}{y^2}$

(b) $\frac{dy}{dt} = y^3 t e^{t^2}$

2) Solve the following differential equations.

(a) $\frac{dy}{dt} = ky^2(1 + t^2)$

(b) $\frac{dL}{dx} = k(x + a)(L - b)$

(c) $y' = e^y x^2$