

Name: _____

4 Digit PIN: _____

Score: _____

Instructions: You must show supporting work to receive full and partial credits. No text book, notes, formula sheets allowed.

1(4pts) Verify that $u = \frac{1}{C - t}$ are solutions of the differential equation $\frac{du}{dt} = u^2$. Find the particular solution satisfying $u(0) = 0.1$.

2(3pts) Find the solution $u(t)$ to the equation $u'' = \cos t + t$ with initial conditions $u'(0) = 0, u(0) = 1$.

3(3pts) The direction field of a differential equation $u' = f(t, u)$ is given. Sketch the solutions that satisfy (a) $u(0) = 0$; (b) $u(2) = 3$.

