MATH 202 / Term 132 Class Test 1 February 25, 2014

Sr: ID: Name:

Q 1: Solve the following differential equations (or IVPs):

- $(e^{2y} - y)\cos(x)y' = e^y \sin(2x)$, $y(0) = 0$.

- $y\frac{dx}{dy} = 2y^2 - x$.

- $x(1-t^2)dx = (tx^2 - \cos t \sin t)dt,\ x(0) = 2.$

Q 3: Use appropriate substitutions to solve the following ordinary differential equations

- $\frac{dy}{dx} = (y - 2x)^2 - 7.$

- $\frac{dy}{dx} = \frac{y-x}{y+x}$.

Q: A culture initially has P_0 number of bacteria . At $t = 1$ hr the number of bacteria is measured to be $\frac{3}{2}P_0$. If the rate of growth is proportional to the number of bacteria $P(t)$ present at time t, determine the time necessary for the number of bacteria to triple.