Quiz 1 in Math 202, Semester: 163 Duration: 40 minutes

Full Name: ID:
Section and Serial number:

Q 1. Find all singular constant solutions of the DE: $y' + y^2 + y = 0$. Given that $y = \frac{C}{e^x - C}$ is a one-parameter of solution of this DE.

Q 2. Verify that $x = c_1 \cos(t\sqrt{2}) + c_2 \sin(t\sqrt{2})$ is a two-parameter family of solution of the DE: $x'' + 2x = 0$.

Q 3. Show that the IVP: $\frac{dy}{dx} = \frac{y^{4/3}}{x} + 1$ with $y(1) = 0$ has a unique solution on some interval I.

Q 4. Solve explicitly the IVP: $(\cos y)y' = (\sin x)\,\mathrm{e}^{-\sin y - \cos x}$ with $y(\pi/2) = 0$.

Q 5. Solve the DE: $(ye^y - 2x)dy = y\,dx$. Hint: Check if this DE is linear in x.