King Fahd University of Petroleum and Minerals

Quiz: 1 Math 260 Semester: 143 Duration: 30 minutes

Full Name: ID:

Section:

Question 1 Verify that $y = x^2 \ln x$ is a solution of the DE:

$$xy'' - y' + e^{yx^{-2}} = 3x \quad \text{on} \quad (1, \infty)$$

Question 2 Find the position function $x(t)$ of a moving particle with acceleration $a(t) = \frac{1}{\sqrt{t+4}}$, initial position $x(0) = 1$ and initial velocity $v(0) = -1$.

Question 3 Solve explicitly the IVP: $(2x^2y - 32y)dy = xdx$ with $y(5) = 2$.

Question 4 Solve the DE:

$$xy'\mathrm{e}^{4y} + y(\mathrm{e}^y + 1)^3y' = \mathrm{e}^{3y}(\mathrm{e}^y + 1)^2$$

by regarding y as the independent variable x as the dependent one.