

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DEPARTMENT OF MATHEMATICAL SCIENCES
MATH 260
Exam # 1
October, 8, 2006

NAME:

ID#:

SHOW ALL YOUR WORK

In problems 1-5 find a general solution for the given differential equation

1. (6points) $y' = \sqrt{x + y}$.
2. (6points) $xy' + 3y = 3x^{-3/2}$.

3. (6points) $(e^y + y \cos x) + (xe^y + \sin x) \frac{dy}{dx} = 0.$

4. (6points) $y' = \frac{x+3y}{y-3x}.$

5. (6points) $y'' = (x + y')^2$.

6. **(10points)** Solve the differential equation $\frac{dy}{dx} = 3(y + 3)x^2$ in two different ways. Do you get the same solutions? Discuss the differences, if any.