

MATH2F05 FIRST MIDTERM NOVEMBER 7, 2005

Full credit given for three correct and complete answers.

Open-book exam.

Duration: 50 minutes

Find general solution to:

1. $(y^3 + 2xe^y)y' = ye^y$ Hint: $x \leftrightarrow y$

2. $x^2y'' - 3xy' + 4y = x \ln x$

3. $x^2y' + (2x - 1)y + x^2y^2 = 0$

4. $y'' = \frac{y'}{x} \left(1 + \ln \frac{y'}{x} \right)$

5. $\left(y \cos \frac{x}{y} + 2xy^2 \right) dx = \left(x \cos \frac{x}{y} + y^2 \right) dy$

Hint: Find integrating factor