

MA3520 Struthers Sp2016 Exam 2:

Name _____

Show integrals etc. you enter in calculators.

Explain what you do. No imaginary numbers in answers.

desolve is not an acceptable technique. Read the instructions.

Use the back of a page to show additional work.

1. Solve $\frac{dP}{dt} = \frac{2}{t} P - t$ $P(3)=1$

2. Solve $(y^2 e^{xy^2} + \cos(x)) dx = -(2xy e^{xy^2} + \frac{2}{4y^2+1}) dy$ $y(\pi/2)=0$

Q1	Q2	Q3	Q4	Total

3. Solve $y' + 2xy = xe^{-x^2}$

Score / 25

4. Use Euler method to obtain a 4 decimal approximation of $y(2.3)$ for $xy' = -2y + 1$ with $y(2.2) = 0.1$.
 First use $h = 0.1$ and then $h = 0.05$. The solution of the IVP is $y = 0.5 - 1.936x^{-2}$

Score / 25

x_n	y_n	Actual Value	Abs Error	% Relative Error
2.20				
2.30				

x_n	y_n	Actual Value	Abs Error	% Relative Error
2.20				
2.25				