

Math 222, Quiz 7

Name:

Circle One: 11:00 12:05

Instructions: Answer the following questions fully, and circle your answer.

Solve the following differential equations:

a) $\frac{dy}{dx} = 3x^2e^{-y}$

Gathering the y terms on the left and x terms on the right, we get $e^y dy = 3x^2 dx$. Integrate both sides to get $e^y = x^3 + C$. Thus, $y = \ln(x^3 + C)$.

b) $e^{2x}y' + 2e^{2x}y = 2x$

Notice right away that the left hand side is $(e^{2x}y)' = 2x$. Integrate both sides to get $e^{2x}y = x^2 + C$. Then $y = \frac{x^2 + C}{e^{2x}}$

Bonus (1pt): What person, whom Will Ferrell commonly portrayed on Saturday Night Live, died this week?
Robert Goulet, a renowned singer.