Mathematics 122

Quiz 14 Name: Key

You must show your work to get full credit.

Let A and B be constants. Compute the following derivatives:

1. $P = 3t^3 + 2e^t$ $\quad \frac{dP}{dt} = 9t^2 + 2e^t$

2. $y = 4 \cdot 10^x - x^3$ $\quad y' = 4(\ln(10))10^x - 3x^2$

3. $P(t) = 12.41 \cdot (0.94)^t$ $\quad P'(t) = (12.41)\ln(0.94)(0.94)^t$

4. $y = B + Ae^t$ $\quad \frac{dy}{dt} = Ae^t$

5. $y = 10^x + \frac{10}{x} = 10^x + 10x^{-1}$

$y' = \ln(10)10^x - 10x^{-2}$

$= \ln(10)10^x - \frac{10}{x^2}$

$y' = \ln(10)10^x - 10x^{-2}$

$= \ln(10)10^x - \frac{10}{x^2}$