Mathematics 122

Quiz #35 Name: Key

You must show your work to get full credit.

2 pts (1) Find the antiderivative, $F(t)$ of $f(t) = 6x^2 + 4x$ with $F(1) = 2$

$F(t) = \frac{6}{3}x^3 + \frac{4}{2}x^2 + C$

$= 2x^3 + 2x^2 + C$

$F(t) = 2x^3 + 2x^2 - 2$

To find C use $F(1) = 2(1)^3 + 2(1)^2 + C = 2$

so $4 + C = 2$

$C = -2$

3 pts (2) Solve $\frac{dy}{dt} = 3y$ with $y(0) = 5$.

The soln is

$y(t) = y(0)e^{3t} = 5e^{3t}$

$y(t) = 5e^{3t}$