Quiz 4 Calculus 2 10/24/2006

Each problem is worth 5 points. Clear and complete justification is required for full credit.

1. Determine whether $y = e^{3t}$ is a solution to the differential equation $y'' - 5y' + 6y = 0$.

$y' = 3e^{3t}$ $y'' = 9e^{3t}$

$9e^{3t} - 5(3e^{3t}) + 6(e^{3t}) =$

$9e^{3t} - 15e^{3t} + 6e^{3t} = 0$ Good

yes, $y = e^{3t}$ is a solution to the differential equation $y'' - 5y' + 6y = 0$

2. Use Euler's Method with step size $\Delta x = 0.5$ to approximate $y(2)$ for the differential equation $y' = y - 2x$ if $y(1) = 0$.

$y' = y - 2x$

$\frac{dy}{dx} = 0 - 2(1)$

$\frac{dy}{.5} = -2$

$dy = -1$

$\Delta x = 0.5$

$\frac{dy}{dx} = (-1) - 2(1.5)$

$\frac{dy}{.5} = -4$

$dy = -2$

x y

$y(1) = 0$

$y(1.5) = -1$

$\boxed{y(2) = -3}$

Excellent