Mathematics 172

Quiz #16 Name: Key

You must show your work to get full credit.

For the initial value problem

$$y'(t) = 2y(t) - t, \qquad y(0) = 3$$

used Euler's method to complete the following table

t	Approximate value of $y(t)$
0.0	3
0.1	3.6
0.2	4.31

$y'(0) = 2(y(0)) - 0 = 2(3) - 0 = 6$

$y(0.1) \approx y(0) + y'(0)h$

$= 3 + 6(.1) = 3.6$

$y'(.1) \approx 2(y(.1)) - (.1)$

$= 2(3.6) - .1$

$= 7.1$

$y(0.2) \approx y(0.1) + y'(0.1)(.1)$

$\approx (3.6) + (7.1)(.1)$

$= 4.31$