

Math 325: Differential Equations Name: _____

Quiz 2 February 2, 2001

You may use your own calculator. You may not use anything else. You may not pass a calculator to another person.

Show all your work. Erase or cross out any work you do not want graded.

Euler's method is used in Maple to evaluate the solution of

$$y' = 2t + e^{-ty}, \quad y(0) = 1$$

at $t = .5$ using step size $h = .025$. The calculation gives $y_{19} = 1.571690036$.

a) Find t_{19} and t_{20} .

b) What is the formula for y_{20} ? (You do not need to give it as a decimal, but your answer should involve only numbers and simple operations on those numbers.)

Bonus (3 points) Draw the picture which shows what you are doing when you use Euler's method in a) and b). Explain the picture in words.