DIRECTIONS To receive full credit, you must provide complete legible solutions to the following problems in the space provided. Transfer all your answers to the space provided.

1. Use Euler's method to obtain a four-decimal approximation of the indicated value

$$
y^{\prime}=e^{-y}, y(0)=0, \quad y(1)=?
$$

a. Using step size $\mathrm{h}=0.2$
b. Using a calculator and a step size $\mathrm{h}=0.05$

Ans $\qquad$
2. Use a numerical solver and Euler's method to obtain a four-decimal approximation of the indicated value. First use $h=0.1$ and then use $h=0.05$.

$$
y^{\prime}=x^{2}+y^{2}, y(0)=2 ; y(0.5)
$$

Ans $\qquad$
3. Use Euler's method to obtain a four-decimal approximation of the indicated value. First use $\mathrm{h}=0.1$ and then use $\mathrm{h}=0.05$.
Find an explicit solution for the initial-value problem and then fill in the following tables. (Round your answers to four decimal places. Percentages may be rounded to two decimal places. Use the rounded values for subsequent calculations.)

| $\mathrm{X}_{\mathrm{n}}$ | $\mathrm{X}_{\mathrm{n}}$ | $\mathrm{y}\left(\mathrm{x}_{\mathrm{n}}\right)$ | Error | \%Error |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

