Online Math 3321

Alternate Assignment 2

Use the Alternate EMCF link inside the EMCF tab to submit your answers. Note that all values must be accurate to 4 digits after the decimal.

1. Use Euler's method with a step size of 0.1 to approximate y(1.2) where y solves $y' = x - y^2$, y(1) = 2.

2. Use Euler's method with a step size of 0.1 to approximate y(0.3) where y solves $y' = x - y^{-2}$, y(0) = 1.

3. Give the slope of the line segment in the direction field for $y' = x - y^2$ at the point (-1, 1). 4. Suppose k is a constant, and the solution to $\frac{dy}{dx} = ky$, y(0) = 1 satisfies y(1) = 3. Give the value of k.

5. A metal ball with initial temperature of 30° C is dropped into a large tank filled with water that is kept at the constant temperature of 90° C. If the temperature of the ball increases 2° C in the first minute, give the temperature of the ball 30 minutes later.

Do not include the units in your answer.