

Name : _____

242 - Differential Equations: Test 1 Extra Credit

DIRECTIONS: Show all work! There is a total of 5 points which will be added to Test 1.

Use Euler's method to find approximations to the solution of the initial value problem

$$y' = 1 - \sin(y), \text{ where } y(0)=0$$

at $x = \pi$ taking 4 steps.

1. (3 points) Find one solution to the *exact linear ODE* below:

$$\frac{dy}{dx} = \frac{e^x y + 1}{1 - e^x}$$