Present neatly ~~on separate paper~~. Justify for full credit. No Calculators.

Name _____ Score _____ A (10 minutes) **x1**

1)

Use Euler's Method to approximate $f(1)$ with step size $\Delta x = 0.5$ if $y = f(x)$ is a solution and the initial condition is (0, 1).

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

Illustrate your solution with a graph.

2)

Solve the following differential equation. Find the specific solution by using the initial condition (1, 3).

$$\frac{dy}{dt}\frac{1+t^2}{y} = 1$$

Present neatly ~~on separate paper~~. Justify for full credit. No Calculators.

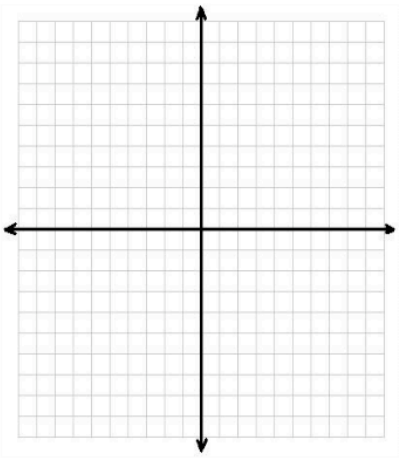
Name _____ Score _____ F (10 minutes) **x1**

1)

Describe the differential equation in as much detail as possible.

$$\frac{dP}{dt} = 0.1P\left(1 - \frac{P}{1000}\right)$$

What happens to the population in the long run if P_0=750? What if P_0=1300? Explain.



2)

Use Euler's Method to approximate $f(1)$ with step size $\Delta x = 0.5$ if $y = f(x)$ is a solution and the initial condition is (0, 1).

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

Illustrate your solution with a graph.