Name _____

Block _____ A or B

Chapter 6 BC Topics

Straut

Directions: You may use a calculator for each question, but all work **must** be shown to receive **any** credit.

1. Given $f'(x) = 2x - 3y$; $f(0) = 4$

A. Use Euler's Method to calculate $f(2)$ with 10 steps of equal sizes.

B. Use your knowledge of First Order Linear Differential Equations to calculate $f(2)$.

2. $\frac{dP}{dt} = 3P\left(1 - \frac{P}{500}\right)$ given $P(0) = 10$ find $P(t)$.

3. $Cy^2 - 3x^4 = y$ find the curve that is Orthogonal to that curve.

4. Describe in 1 - 2 sentences only and using precision why the following are not First Order Linear Differential Equations.

A. $y^2\,dy + 3\,y\,dx = 0$

B. $\frac{d^2y}{dx^2} + 3\,xy = 2y$

5. $\frac{dy}{dx} + 4xy = 2y \;\; find\, y\; given\, y(0) = 4$