

Graded Assignment 1
Math 341 - Fall 2002
Prof. John A. Pelesko

This assignment is to be handed in on September 18th. You are encouraged to work together, but the work you hand in must be your own.

(1) (5 points) Solve the following first order linear ordinary differential equation

$$\frac{d\rho}{d\theta} + 2 \cos(\theta)\rho = \sin(2\theta). \quad (1)$$

(2) (5 points) Solve the following initial value problem

$$\frac{dp}{dx} - \frac{a}{\sqrt{1+p^2}} = 0 \quad (2)$$

$$p(0) = 0 \quad (3)$$

(3) (10 points) A point P is dragged along in the x-y plane by a string PT of length a . If T starts at the origin and moves along the positive y axis, and if P starts at $(a,0)$ what is the differential equation that the path of P satisfies?