Quiz 1: (2 possible points on Test 1)

January 20, 2014

1. (1 point) : What is the order of each differential equation?

   (a) \[ e^t \left( \frac{dy}{dt} \right)^2 + \cos(t)y = \sin(t) \quad \text{first order} \]

   (b) \[ \frac{d^3 y}{dt^3} + t \frac{dy}{dt} = \cos(t) \quad \text{third order} \]

2. (1 point) Is each differential equation linear or nonlinear?

   (a) \[ \frac{d^4 y}{dt^4} + e^t \frac{d^3 y}{dt^3} + \sin^2(t) \frac{d^2 y}{dt^2} + t^2 \frac{dy}{dt} = \cos(t) \quad \text{linear} \]

   (b) \[ \frac{dy}{dt} \frac{d^2 y}{dt^2} + ty = t \quad \text{nonlinear} \]