1. Consider the differential equation describing the motion of a pendulum:

\[ \frac{d^2 \theta}{dt^2} + \sin \theta = 0. \]

(a) (1 point) What is the order of this equation?

(b) (1 point) Is this equation linear or nonlinear?

(c) (1 point) Is the equation autonomous or nonautonomous?

(d) (1 point) Is this a scalar equation or a system?

2. Consider the following differential equation:

\[ \frac{dy}{dt} + y = e^t \]

(a) (4 points) Find the general solution of this equation.

(b) (2 points) Find the specific solution satisfying \( y(0) = 0 \).