

Problem 3

In each of Problems 1 through 6, determine the order of the given differential equation; also state whether the equation is linear or nonlinear.

$$\frac{d^4y}{dt^4} + \frac{d^3y}{dt^3} + \frac{d^2y}{dt^2} + \frac{dy}{dt} + y = 1$$

Solution

The fourth derivative of y is the highest derivative, so the order of the ODE is 4. The ODE is linear because there are no nonlinear functions of y .