

Problem 6

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

$$\frac{d^3y}{dt^3} + t\frac{dy}{dt} + (\cos^2 t)y = t^3$$

Solution

The third derivative of y is the highest derivative, so the order of the ODE is 3. The ODE is linear because there are no nonlinear functions of y .