

Problem 1

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

$$t^2 \frac{d^2 y}{dt^2} + t \frac{dy}{dt} + 2y = \sin t$$

Solution

The second derivative of y is the highest derivative, so the order of the ODE is 2. The ODE is linear because there are no nonlinear functions of y .