

Problem 23

In each of Problems 21 through 24, determine the order of the given partial differential equation; also state whether the equation is linear or nonlinear. Partial derivatives are denoted by subscripts.

$$u_{xxxx} + 2u_{xxyy} + u_{yyyy} = 0$$

Solution

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