Answer on Question #69665 – Math – Differential Equations

Question

The order of differential equation d2y/dx2+2dy/dxd3y/dx3+x=0 is _____

Solution

We have differential equation

$$\frac{d^2y}{dx^2}+2\frac{dy}{dx}\cdot\frac{d^3y}{dx^3}+x=0.$$

It can be written as follows:

$$y''+2y'y'''+x=0.$$

The differential equation $y''+2y'y'''+x=0$ is third order since the highest derivative is y''' or the third derivative.

Answer: The order of differential equation $\frac{d^2y}{dx^2}+2\frac{dy}{dx}\cdot\frac{d^3y}{dx^3}+x=0$ is 3.