



Differential Equations Assignment 1

Determine whether each differential equation is linear or nonlinear in y and state the order.

(a) $\sin(x)y'' + x^2y' + \sin(x)y = e^{\arctan(x)}$

(b) $\cos(x)y''' + yy' + y = 0$

(c) $\left(\frac{dy}{dx}\right)^5 + xy = e^{3x}$



Solutions to Assignment 1

- (a) linear, order 2
- (b) nonlinear, order 3
- (c) nonlinear, order 1