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contains a

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reference to the independent variable the two types of ordinary

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m defined over a domain $\Omega \subset \mathbb{R}^n$ is written $\sum_{|\alpha| \leq m} a_\alpha(x) \partial^\alpha u$ usually a is called

an ordinary differential operator if $n = 1$ and a partial differential

operator if $n > 1$ the operator a is quasilinear if $\sum_{|\alpha| = m} a_\alpha(x) \partial^\alpha u$ is a linear

function of v when u is held fixed

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has only derivatives of one variable that is it has no partial

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introduction an ordinary differential equation is a relation

involving one or several derivatives of a function $y(x)$ with respect

to x the relation may also be composed of constants given functions of x or y itself the equation $y' + p(x)y = q(x)$ where $y' = \frac{dy}{dx}$ is of a

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ordinary differential equation definition facts britannica Nov 16 2022 web 26 jan 2023 ordinary differential equation ode in mathematics an equation relating a function f of one variable to its derivatives the adjective ordinary here refers to those differential equations involving one variable as distinguished from such equations involving partial derivatives of several variables called partial differential equations

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wikipedia Oct 03 2021 web a first order differential equation is an initial value problem ivp of the form $y' + p(x)y = q(x)$ where y is a function and the initial condition is a given vector first order means that only the first derivative of y appears in the equation and higher derivatives are absent

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variables

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relation that contains functions of only one independent variable and one or more of its derivatives with respect to that variable a simple example is newton s second law of motion which leads to the differential equation for the motion of a particle of mass m in general the

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an unknown quantity with respect to a single variable more precisely suppose \mathbb{R}^n is a euclidean space and $f: \text{dom } f \rightarrow \mathbb{R}^n$ 1copies $f \in C^1$ then an n th order ordinary differential equation is an equation

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