

# Applications Of Differential Equations In Daily Life

## **APPLICATION OF DIFFERENTIAL EQUATION IN OUR REAL LIFE**

### **Introduction:**

A differential equation is a mathematical equation for an unknown function of one or several variables that relates the values of the function itself and its derivatives of various orders. Differential equations play a prominent role in engineering, physics, economics, and other disciplines. One thing that will never change is the fact that the world is constantly changing. Mathematically, rates of change are described by derivatives. If we try and use math's to describe the world around us like the growth of plant, the growth of population, the fluctuations of the stock market, the spread of diseases, or physical forces acting on an object, Most real life differential equation needs to be solved numerically and many methods have been developed over the last century and half and the goal has been to find methods that work for large classes of differential equations. There seems to have been very little work published that examines methods specialized to a single Differential Equation. By using Differential Equation we can easily solve our day to day life problems.

### **Problem:**

Influenza virus is one of the main problems in Bangladesh. Many people in our country are affected by this virus. The person carrying an influenza virus returns to an isolated village of 500 peoples. It is assumed that the rate at which the virus spreads is proportional not only to the number of infected peoples but also to the people not infected. Find the number of infected people after 5 months when it is further observed that after 3 months. Number of infected peoples in 3 months is 30.

### **Mathematical Formulation:**

Let  $N_i$  denote the number of infected people at any time  $t$ ,  $N$  is the total number of people and  $N_i$  is the time period.

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### **Calculus Wikipedia**

Calculus (from Latin calculus, literally 'small pebble', used for counting and calculations, as on an abacus) is the mathematical study of continuous change, in the same way that geometry is the study of shape and algebra is the study of generalizations of arithmetic operations.. It has two major branches, differential calculus (concerning instantaneous rates of change and slopes of curves ...

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