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Applications of Derivatives In Engineering

Derivatives is an expression that gives the rate of change of a function with respect to an independent variable.

Partial derivatives are used in vector calculus and differential geometry.

The derivatives is defined as the rate of change of one quantity with respect to another. In terms of functions, the rate of change of function is defined as

$$dy/dx = f(x) = y'$$

- The calculate the profit and loss in business using graphs.
- To check the temperature variation.
- To determine the speed or distance covered such as miles per hour, kilometer per hour etc.
- Derivatives are used to derive many equations in physics.
- In study of seismology like to find the range of magnitudes of the earthquake.

Applications of integration in Engineering:

- 1: Area between curves
- 2: Distance, Velocity, Acceleration
- 3: Volume
- 4: Average value of a function
- 5: Work
- 6: Center of Mass
- 7: Kinetic energy; improper integrals
- 8: Probability
- 9: Arc length
- 10: Surface Area
- 11: Shear Force and bending moment
- 12: Length of curve

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13: Area under a curve

14: Moments of Inertia

15: Centroid of an area