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# Application of Derivative and Integration In engineering

## Rates of Change $\Rightarrow$

In this section we review the main application / interpretation of derivative from the previous chapter that we will be using in many of the applications.

## Critical point $\Rightarrow$

In this section we give the definition of critical point. Critical points will be shown up in most of the section. In this chapter. So it will be important to understand them and how to find them we will work a number of examples.

## Minimum and maximum values :-

In this section we define absolute (or global) minimum and maximum values of a function and relative (or local) minimum and maximum value of a function. It is important



to understand the difference b/w the two types of minimum and maximum.

## Finding absolute extrema:-

In this section we discuss how to find the absolute (or global) minimum and maximum value of function.

In other word, we will be finding the largest and smallest value that a function will have.

## The shape of A Graph part - I

In this section we will discuss what the first part derivative of the function can tell us about the graph of a function.

The first derivative will allow us to identify the relative or local) a function and where a function will be increasing and decreasing.

## The main values of theoram:-

In this section we will give Rolle's theoram and the mean value theoram we will prove



a couple very nice facts, one of which we will be very successful values that a function will have.

## Newton's method:-

In this section we will discuss the Newton method. Newton method is an application of derivative we allow us to approximate solution to equation.

## Integration applications:-

- Area b/w curves
- Distance, velocity Acceleration.
- volume
- Average value of function
- work
- Center of mass
- kinetic engineer.
- Probability