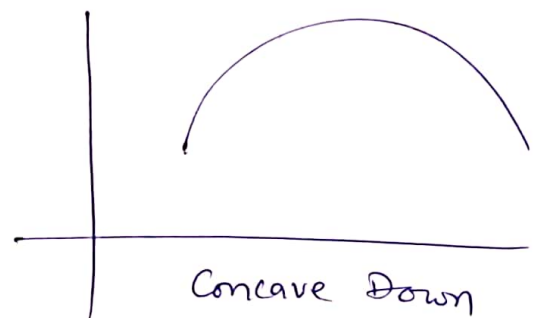
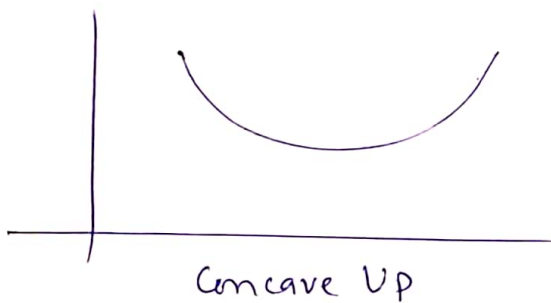


Concavity:

If f is differentiable on an open interval, then f is said to be concave up on the open interval if f' is increasing on that interval and f is said to be concave down on the open interval if f' is decreasing on that interval.



Theorem: Let f be twice differentiable on an open interval.

- (a) If $f''(x) > 0$ for every value of x in the open interval then f is concave up on that interval.
- (b) If $f''(x) < 0$ for every value of x in the open interval then f is concave down on that interval.

Inflection points: If f is continuous on an open interval containing a value x_0 and if f changes the direction of its concavity at the point $(x_0, f(x_0))$, then we say that f has an inflection point at x_0 and we call the point $(x_0, f(x_0))$ an inflection point of f .