

A function's first derivative tells how the graph rises and falls.

First Derivative Test for Local Extrema

**Local
Maximum**

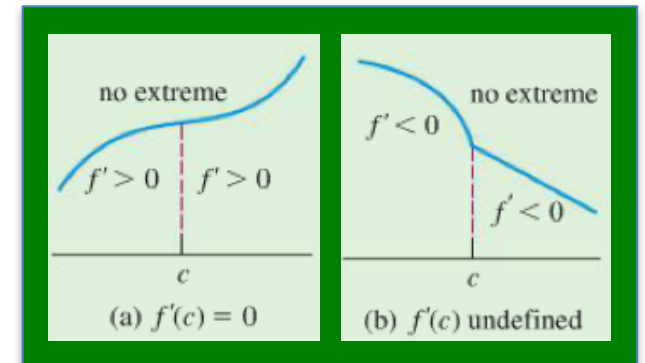
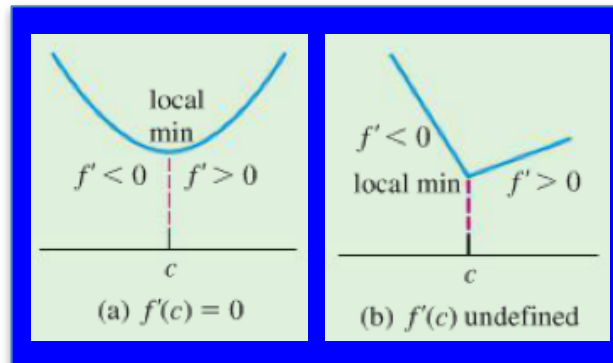
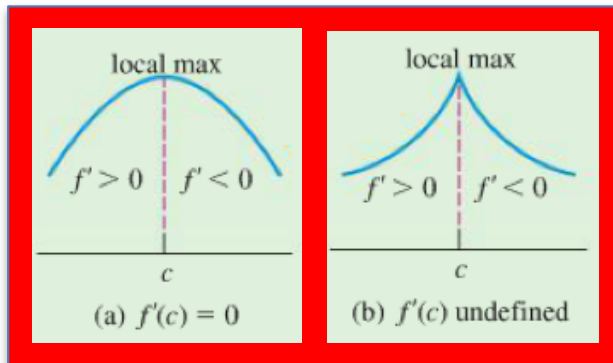
**Local
Minimum**

**No Local
Extrema**

When f' changes
sign from positive
to negative.

When f' changes
sign from negative
to positive.

When f' does not
change sign.

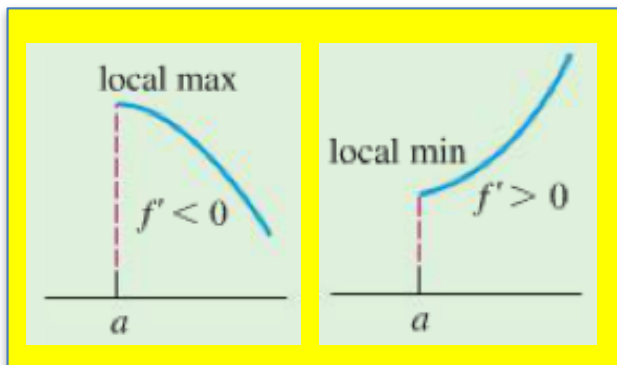


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First Derivative Test for Local Extrema (ENDPOINTS)

**Left
Endpoint**

If f' is negative, then it's a local maximum.
If f' is positive, then it's a local minimum.



**Right
Endpoint**

If f' is negative, then it's a local minimum.
If f' is positive, then it's a local maximum.

