## CRITICAL NUMBERS:

THE VALVES OF X THAT ARE IN THE DOMAIN OF + (X) AND OLLUR WHEN

f'(x)=0 AND f'(x) IS UNDEFINED.

TO FIND (RITICAL NUMBERS:

(1) FIND F'(X)

(2) SOLVE F'(X)=O FORX

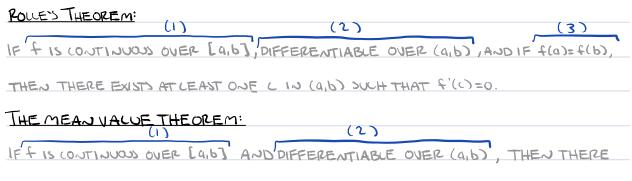
(3) DETERMINE WHEN F'(X) IS UNDEFINED.

## THE EXTREME VALUE THEOREM:

IF F IS A CONTINUOUS FUNCTION OVER THE CLOSED, BOUNDED INTERVAL [4,6], THEN THERE

IS A POINT IN [a, b] AT WHICH & HAS AN ABSOLUTE MAXIMUM OVER [a, b], AND THERE ISA

POINT IN [a,b] AT WHICH & HAS AN ABSOLUTE MINIMUM OVER [a,b].



EXISTS ATLEAST ONE POINT C IN (a,b) SUCH THAT f'(c)=f(b)-f(a). b-a

TO FIND C SUCH THAT THE MEAN VALUE THEOREM HOLDS,

(1) FIND f(b) AND f(a)

(2) PLUGIN TO f(b)-f(1) AND SIMPLIFY b-9

(3) SET F'(1) EQUALTO YOUR SOLUTION IN (2) AND SOLUE FOR C.

## LOCAL MAX AND MIN:

IF FHAS A LOCAL EXTREMUM AT CAND FIS DIFFERENTIABLE AT C, THEN f'(c)=0.

TO FIND LOCAL EXTREMA:

(I) EVALUATE & AT THE ENDPOINTS OF INTERVAL GIVEN

(2) FIND L SUCH THAT F'(1)=0

(3) ANALYZE REJULTS OF (1) AND (2) TO DETERMINE MIN/MAX

NOTE:

\* IF f'(c) =0 AND f"(c) >0 ⇒ f HASA LOCALMINIMUM ATC

\* IF f'(c)=0 AND f"(c) LO =) f HAS A LOCAL MAXIMUM AT C