**Everything you need to know about \*Existence\* theorems**

In this section, I’ll state the IVT, the EVT, and the MVT. You don’t need to prove them for 137, but if I have the time, I’ll put the proofs from 157 here.

**Intermediate value theorem – IVT**

The formal statement of the IVT is:

There are a couple of problems in which this will come in very handy, mainly:

1. Here
2. Here
3. here

**Extreme Value Theorem – EVT**

The formal statement of the EVT is:

There are a couple of problems in which this will come in very handy, mainly:

1. Here
2. Here
3. here

**Mean Value Theorem – MVT**

the mean value was proven in depth in “E.Y.N.T.K.A [[1]](#footnote-1)derivatives”. The statement is:

1. E.Y.N.T.K.A = everything you need to know about… [↑](#footnote-ref-1)