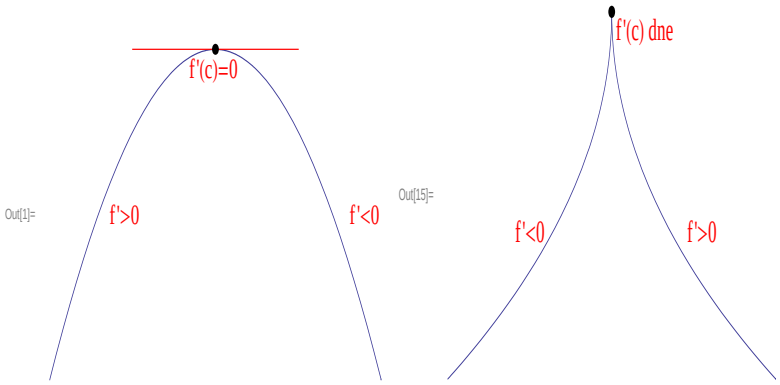
have couple of geometrical explorations that will pave the road to it.

Note that in each of the following cases the argument will be around a "critical point" (recall that a critical point is a point where either $f'(x) = 0$ or $f'(x)$ does not exist.)
Case 1 Assume that at the critical point $x = c$, the function f(x) has a maximum. Then a typical picture you will get, will be one of the following:



Case 2 Assume that at the critical point $x = c$, the function f(x) has a minimum. Then a typical picture you will get, will be one of the following: