example
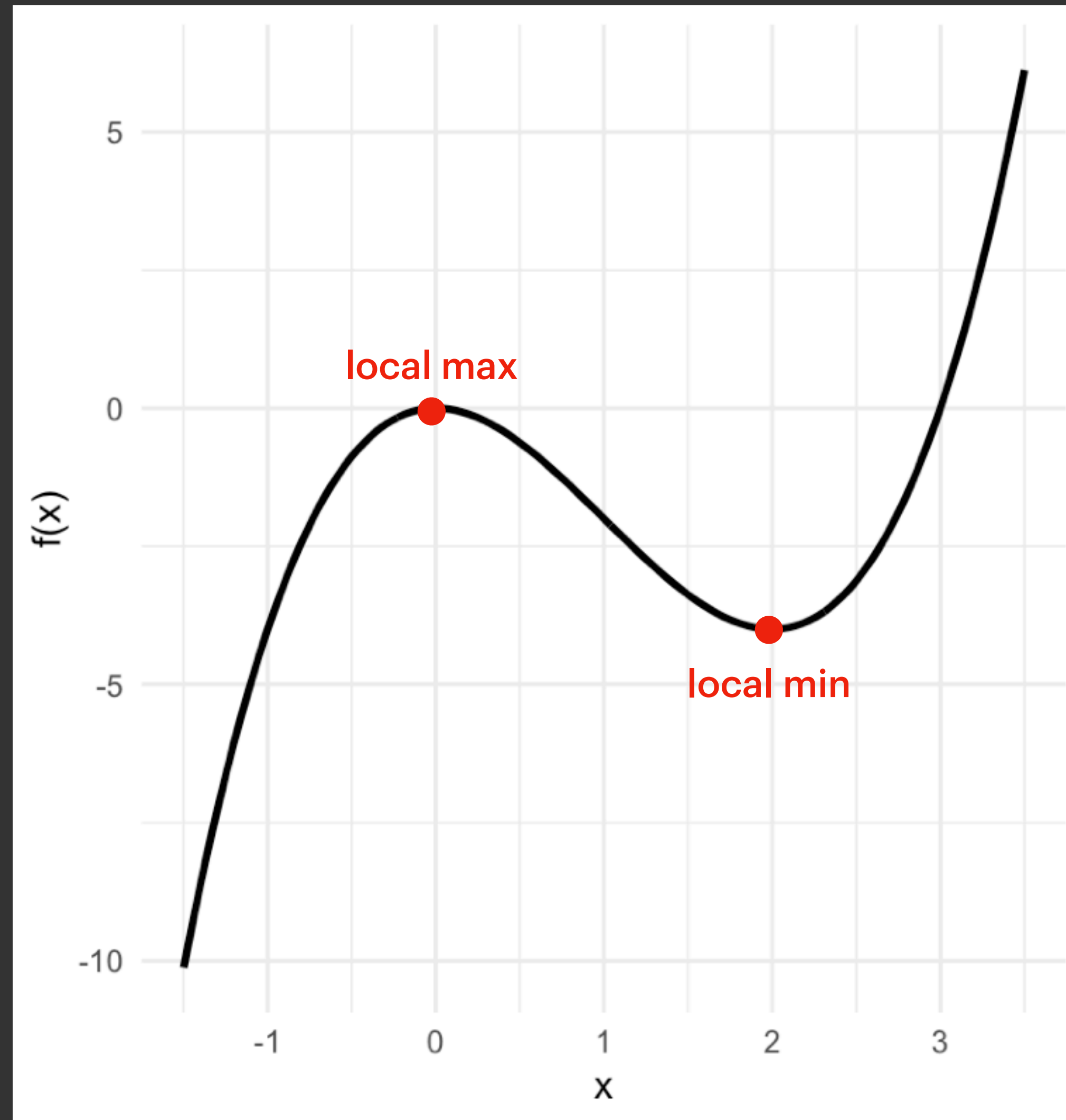
$$f(x) = x^3 - 3x^2$$

the first derivative test for local extreme values