Exercise 12
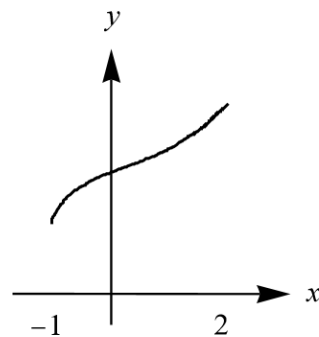
(a) Sketch the graph of a function on $[-1, 2]$ that has an absolute maximum but no local maximum.

(b) Sketch the graph of a function on $[-1, 2]$ that has a local maximum but no absolute maximum.

Solution

Recall that for a function to have a local maximum at c, there has to be an open interval about this value. That is, local maxima cannot occur at the endpoints.

Absolute maximum
but no local maximum

Local maximum
but no absolute maximum