Exercise 28

Sketch the graph of f by hand and use your sketch to find the absolute and local maximum and minimum values of f. (Use the graphs and transformations of Sections 1.2 and 1.3.)

$$f(x) = \begin{cases} 2x + 1 & \text{if } -1 \le x \le 0 \\ 4 - 2x & \text{if } 1 \le x \le 3 \end{cases}$$

Solution

The function has an absolute minimum,

$$f(3) = 4 - 2(3) = -2,$$

as the graph below indicates.