

Exercise 50

For the following exercises, given each function f , evaluate $f(-1)$, $f(0)$, $f(2)$, and $f(4)$.

$$f(x) = \begin{cases} x^2 - 2 & \text{if } x < 2 \\ 4 + |x - 5| & \text{if } x \geq 2 \end{cases}$$

Solution

Since $-1 < 2$,

$$f(-1) = (-1)^2 - 2 = (1) - 2 = -1.$$

Since $0 < 2$,

$$f(0) = (0)^2 - 2 = (0) - 2 = -2.$$

Since $2 \geq 2$,

$$f(2) = 4 + |(2) - 5| = 4 + |-3| = 4 + 3 = 7.$$

Since $4 \geq 2$,

$$f(4) = 4 + |(4) - 5| = 4 + |-1| = 4 + 1 = 5.$$