

2.4.29

Exercise 2.4.29 For

$$f(x) = \begin{cases} 2x+4 & \text{if } -3 \leq x \leq 1 \\ x^3-1 & \text{if } 1 < x \leq 5, \end{cases}$$

find (a) $f(-2)$, (b) $f(0)$, (c) $f(1)$, (d) $f(3)$.

Solution

(a) Since $x = -2$ satisfies $-3 \leq x \leq 1$, then we use the $2x+4$ "piece" of f to get $f(-2) = 2(-2) + 4 = -4 + 4 = \boxed{0}$.

(b) Since $x = 0$ satisfies $-3 \leq x \leq 1$, then we use the $2x+4$ "piece" of f to get $f(0) = 2(0) + 4 = \boxed{4}$.

(c) Since $x = 1$ satisfies $-3 \leq x \leq 1$, then we use the $2x+4$ "piece" of f to get $f(1) = 2(1) + 4 = \boxed{6}$.

(d) Since $x = 3$ satisfies $1 < x \leq 5$, then we use the x^3-1 "piece" of f to get $f(3) = (3)^3 - 1 = 27 - 1 = \boxed{26}$.