

Exercise 78

Determine whether f is even, odd, or neither. If you have a graphing calculator, use it to check your answer visually.

$$f(x) = 1 + 3x^3 - x^5$$

Solution

Substitute $-x$ for x and see what happens.

$$\begin{aligned} f(-x) &= 1 + 3(-x)^3 - (-x)^5 \\ &= 1 - 3x^3 + x^5 \end{aligned}$$

f is neither even nor odd because $f(-x) \neq f(x)$ and $f(-x) \neq -f(x)$. This is indicated by the lack of symmetry about the vertical axis or origin in the graph below.

