

Question23276

Determine if the given function is even, odd or neither.

5a. $f(x) = x^5 - x$

5b. $f(x) = 5$

5c. $f(x) = x^4 + 2x^3$

Solution.

5a. $f(-x) = (-x)^5 - (-x) = -x^5 - (-x) = -(x^5 - x) = -f(x)$.

Since $f(-x) = -f(x)$ it follows that the function $f(x) = x^5 - x$ is an odd function.

5b. $f(-x) = 5 = f(x)$

Since $f(-x) = f(x)$ the function is even.

5c. $f(-x) = (-x)^4 + 2(-x)^3 = x^4 - 2x^3$.

Clearly that $f(-x) \neq f(x)$ and $f(-x) \neq -f(x)$, which means that the function is neither even nor odd.

Answer. 5a. odd. 5b. even. 5c. neither even nor odd.