The method: Even and odd functions

Find f(−x). If it equals f(x), f is even. If it equals −f(x), f is odd. Otherwise it is neither.

$f(x) = -x^3 - 6x^2 - 3x + 4$ even, odd, or neither: neither

$f(-x) = -(-x)^3 - 6(-x)^2 - 3(-x) + 4 = x^3 - 6x^2 + 3x + 4$ put −x in for x

f(−x) is neither f(x) nor −f(x)

$f(x) = x^4 - 6$ even, odd, or neither: even

$f(-x) = (-x)^4 - 6 = x^4 - 6$ put −x in for x

f(−x) = f(x), so f is even

$f(x) = -x^3 + x$ even, odd, or neither: odd

$f(-x) = -(-x)^3 + (-x) = x^3 - x$ put −x in for x

f(−x) = −f(x), so f is odd

Problems 1 and 2 worked out · Version 0A

$f(x) = -4x^3 - 5x$ even, odd, or neither: odd

$f(-x) = -4(-x)^3 - 5(-x) = 4x^3 + 5x$ put −x in for x

f(−x) = −f(x), so f is odd

$f(x) = x^4 + 4x^2 - 3$ even, odd, or neither: even

$f(-x) = (-x)^4 + 4(-x)^2 - 3 = x^4 + 4x^2 - 3$ put −x in for x

f(−x) = f(x), so f is even

Even and odd functions · Version 0A

1) odd 2) even 3) neither 4) neither 5) neither
6) even 7) even 8) neither 9) odd 10) even
11) neither 12) even 13) even 14) even
15) neither 16) neither 17) neither 18) neither