

**Classifying Even and Odd Functions - Step-by-Step Lesson**

Determine if the following function is even or odd.

$$f(x) = x^8 + x^{12} - x^6$$

**Explanation:**

When a function is symmetric on the y-axis, it is said to be **even**.

A function can be classified as **even** when:  $f(x) = f(-x)$  (for all  $x$ s)

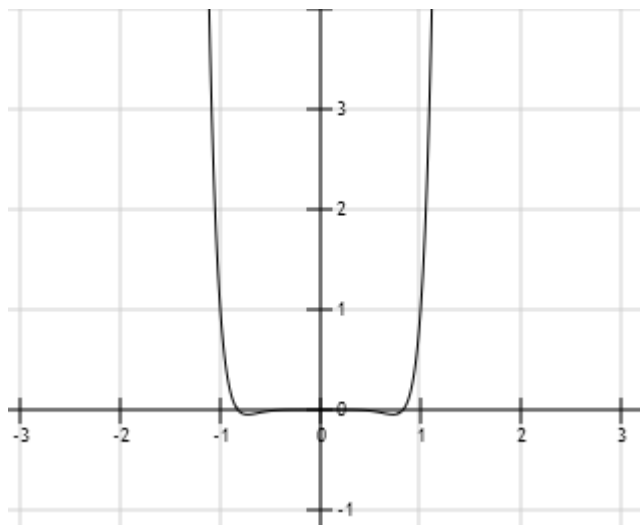
When a function is symmetric to the origin  $(0,0)$ , it is called **odd**.

When a function follows the pattern  $-f(x) = f(-x)$  (for all  $x$ s), it is termed **odd**.

Also note that functions that do not meet either criterion are classified as neither odd or even.

**To Our Problem:**

The best way to approach these types of problems is graph them.



This is symmetric about the y-axis and all the exponents are even

So it is an even function  $f(x) = (x)^8 + (x)^{12} - (x)^6 = x^8 + x^{12} - x^6 = f(x)$

