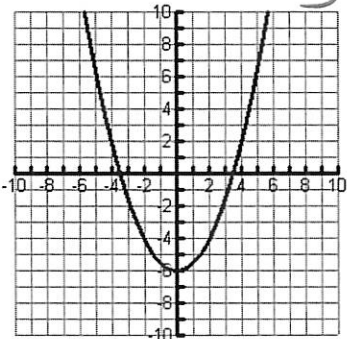
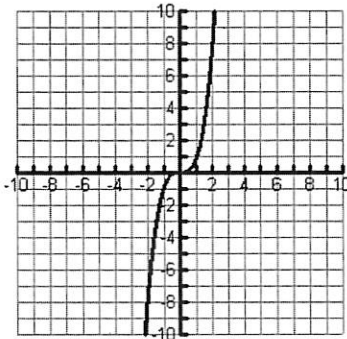


C. Identifying Even and Odd Functions

EVEN FUNCTIONS	ODD FUNCTIONS
$f(x) = \frac{1}{2}x^2 - 6$ <p>METHOD 1: SYMMETRY</p> <p>Symmetric with respect to the <u>y</u> - axis</p>  <p>METHOD 2: $f(-x) = f(x)$</p> $f(x) = \frac{1}{2}x^2 - 6$ $f(-x) = \frac{1}{2}(-x)^2 - 6$ $= \frac{1}{2}x^2 - 6$ <p>$f(-x) = f(x) \rightarrow$ even</p>	$f(x) = x^3$ <p>METHOD 1: SYMMETRY</p> <p>Symmetric with respect to the <u>origin</u></p>  <p>METHOD 2: $f(-x) = -f(x)$</p> $f(x) = x^3$ $f(-x) = (-x)^3$ $= -1x^3$ <p>opposites ✓</p>

same

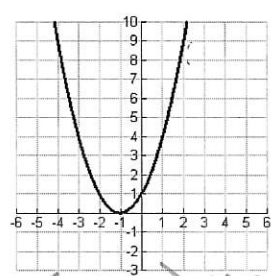
Functions that are neither odd nor even \rightarrow

$f(x) = x^2 + 2x + 1$

Even
↑
odd

∴ neither

Method 1:



$(-2, 1)$ vs. $(2, 9)$

$f(-x) = f(x)$

Method 2: Find $f(-x)$

$$f(-x) = (-x)^2 + 2(-x) + 1$$

$$= x^2 - 2x + 1$$

not opposites.
not same
∴ neither

Determine if each function is even, odd, or neither.

7) $f(x) = x\sqrt{4-x^2}$

$$f(-x) = -x\sqrt{4-(-x)^2}$$

$$= -x\sqrt{4-x^2}$$

$$f(-x) = -f(x)$$

\therefore odd

9) $f(x) = \frac{1}{5}x^6 - 3x^2$

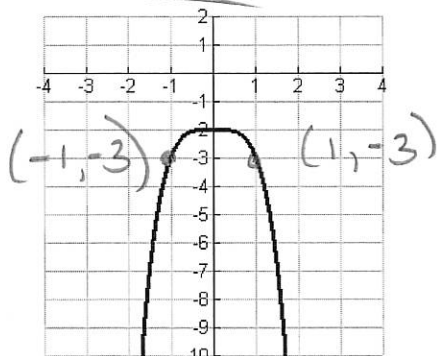
both even \rightarrow
even

$$f(-x) = \frac{1}{5}(-x)^6 - 3(-x)^2$$

$$= \frac{1}{5}x^6 - 3x^2$$

same \therefore even

11) even



even

even
odd
 \therefore neither

8) $f(x) = x^2 + 2x - 3$

$$f(-x) = (-x)^2 + 2(-x) - 3$$

$$f(-x) = x^2 - 2x - 3$$

not opp
not same

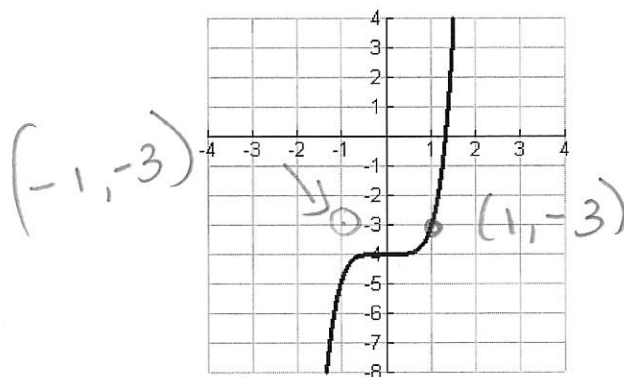
10) $f(x) = x^2 + x$ \rightarrow even \rightarrow odd

$$f(-x) = (-x)^2 + (-x)$$

$$= x^2 - x$$

not same
not opposite
neither

12) _____



Is it sym.
about origin?

neither