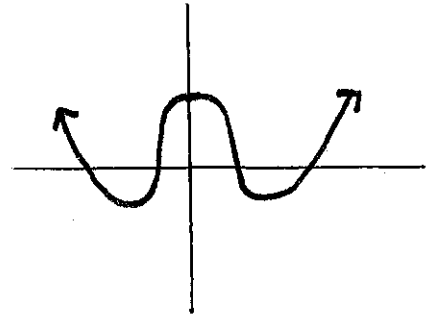
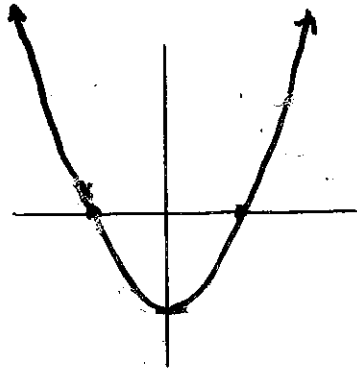


§3-4 Symmetries of Functions

EVEN Functions

Graphically:



Even functions are symmetric with respect to the _____

Numerically:

If $(2,3)$ is on the graph of an even function, then so is the point _____

If $f(4) = 6$ and $f(x)$ is an even function, then points (____) and (____) are on f .

If (x, y) is on the graph of an even function, then so is (_____).

Algebraically:

Prove

Proof that a function is even: Show that $f(-x) = f(x)$.

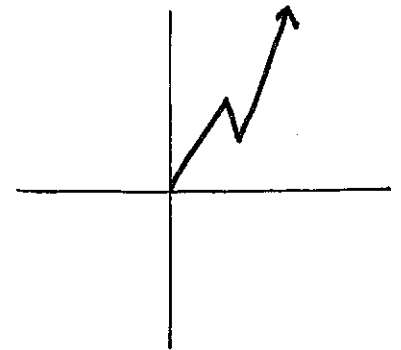
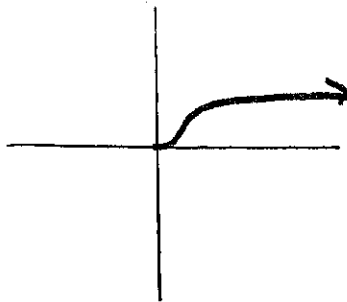
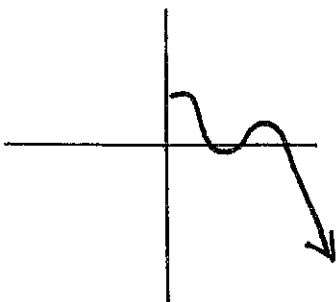
Prove that the following are even:

$$f(x) = |x| + 2$$

$$g(x) = x^2 + 3x$$

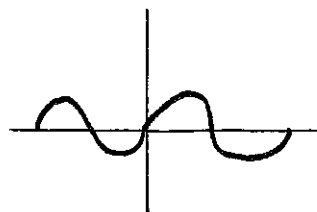
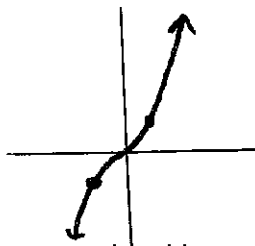
$$h(x) = x^4 + x^2 + 2$$

Complete the following graphs if each function is even.



ODD Functions

Graphically:



Odd functions are symmetric with respect to the _____

Numerically:

If (2,3) is on the graph of an odd function, then so is the point _____

If $f(4) = 6$ and $f(x)$ is an odd function, then points (____) and (____) are on f .

If (x, y) is on the graph of an odd function, then so is (_____).

Algebraically:

Prove

~~Prove~~ that a function is odd: Show that $f(-x) = -f(x)$.

Prove that the following are odd:

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

$$h(x) = x^5 + 3x^3 + x^2$$

Complete the following graphs if each function is odd:

