

1. Describe the symmetry of an EVEN function.

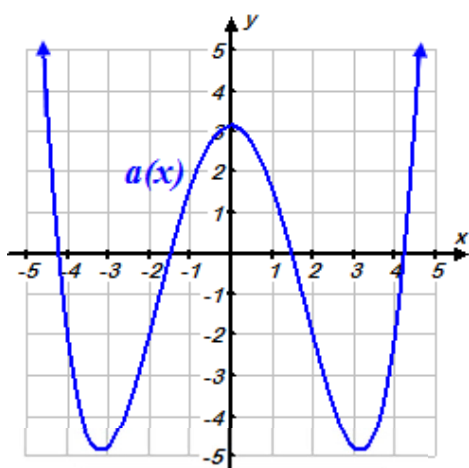
THE GRAPH MUST BE SYMMETRIC WITH RESPECT TO THE Y-AXIS.
(i.e. IF WE REFLECTED THE RIGHT HALF OF THE GRAPH OVER THE Y-AXIS, IT WOULD PERFECTLY MATCH UP WITH THE LEFT HALF OF THE GRAPH. $f(-x) = f(x)$)

2. Describe the symmetry of an ODD function.

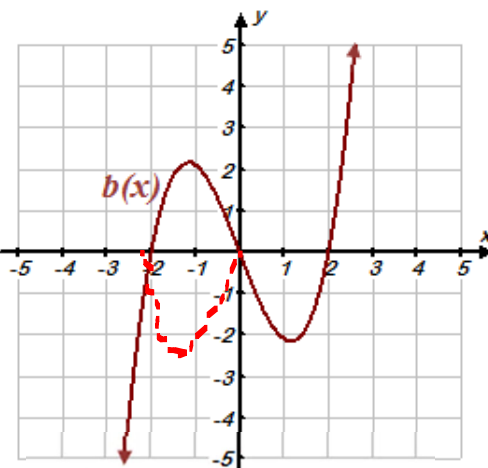
THE GRAPH MUST BE SYMMETRIC WITH RESPECT TO THE ORIGIN.

(i.e. IF WE FIRST FOLD THE GRAPH IN HALF ALONG THE Y-AXIS AND THEN FOLD THE GRAPH IN HALF ALONG THE X-AXIS, IT WOULD PERFECTLY MATCH THE GRAPH IN THE 3rd QUADRANT. ALTERNATELY, YOU COULD ALSO ROTATE THE GRAPH 180° ABOUT THE ORIGIN AND THERE WOULD BE NO CHANGE $f(-x) = -f(x)$)

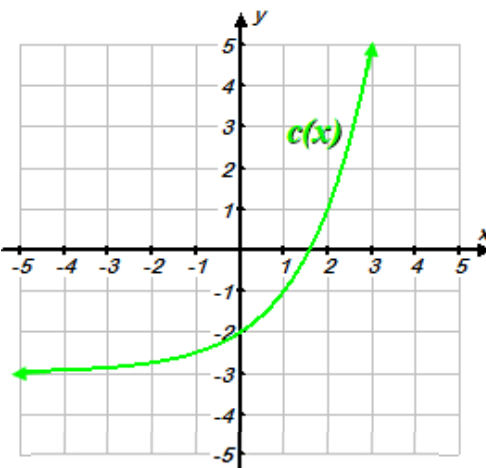
3. Describe each graph as EVEN, ODD, or NEITHER



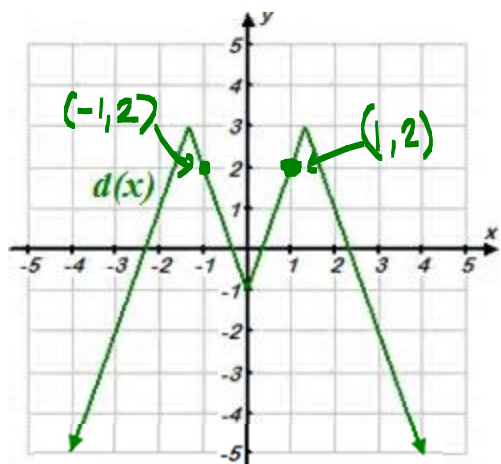
EVEN



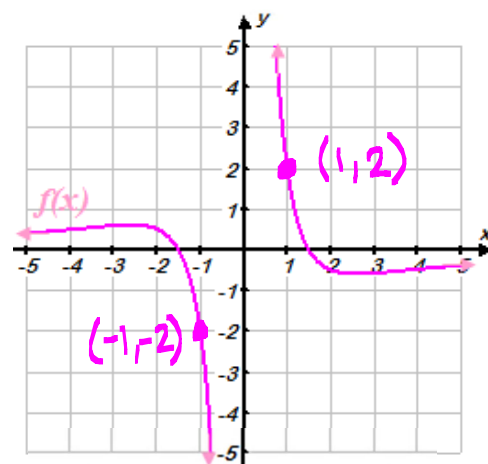
ODD



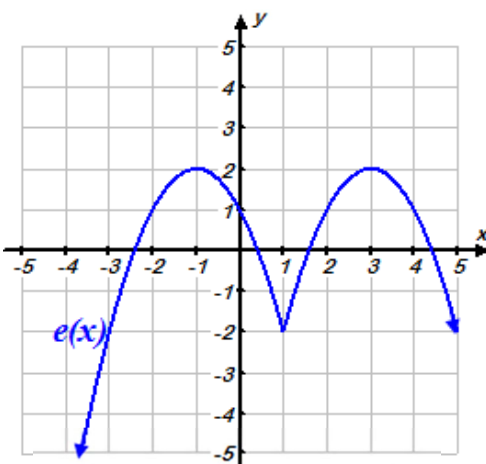
NEITHER



EVEN



ODD



NEITHER

4. Describe the definition in function notation of every EVEN function.

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

5. Describe a definition in function notation of every ODD function.

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

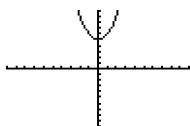
6. Describe each function below as EVEN, ODD, or NEITHER

a. $f(x) = x^2 + 5$

$$f(-x) = (-x)^2 + 5$$

$$f(-x) = x^2 + 5 = f(x) \quad \checkmark$$

EVEN



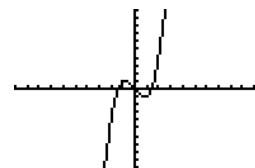
b. $g(x) = x^3 - 2x$

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

$$= -x^3 + 2x$$

$$g(-x) = -(x^3 - 2x) = -g(x) \quad \checkmark$$

ODD



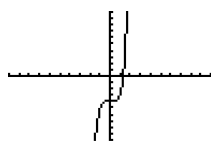
c. $h(x) = x^5 - 4$

$$h(-x) = (-x)^5 - 4$$

$$= -x^5 - 4$$

$$= -(x^5 + 4)$$

NEITHER

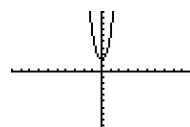


d. $m(x) = x^4 + 3x^2 + 2$

$$m(-x) = (-x)^4 + 3(-x)^2 + 2$$

$$= x^4 + 3x^2 + 2 = m(x) \quad \checkmark$$

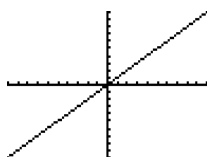
EVEN



e. $p(x) = x$

$$p(-x) = (-x) = -x = -p(x)$$

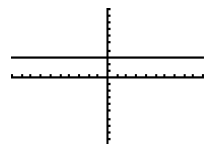
ODD



f. $q(x) = 3$

$$q(-x) = 3 = q(x)$$

EVEN



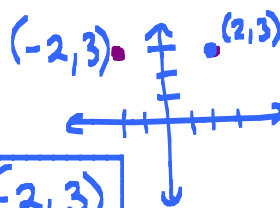
7. If $f(2) = 3$ and $f(x)$ is an EVEN function what other point must be on the graph of $f(x)$? 8. If $g(2) = 3$ and $g(x)$ is an ODD function what other point must be on the graph of $g(x)$?

$$f(2) = 3$$

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

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

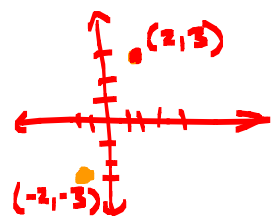
(-2, 3)



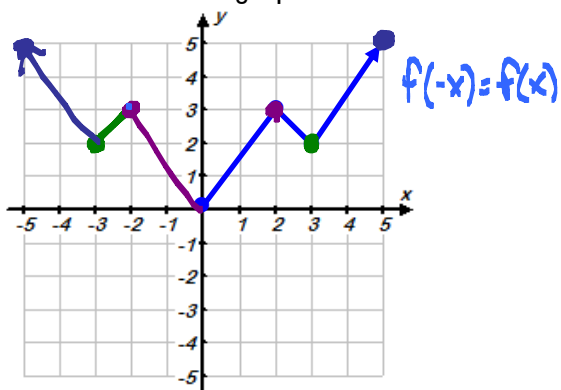
$$g(-x) = -g(x)$$

$$g(-2) = -g(2) = -3$$

(-2, -3)



9. If the partially graphed function below is EVEN then finish what the rest of the graph should look like.



10. If the partially graphed function below is ODD then finish what the rest of the graph should look like.

