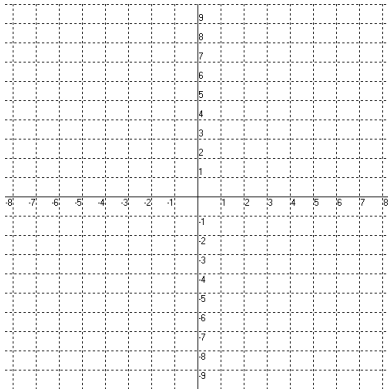


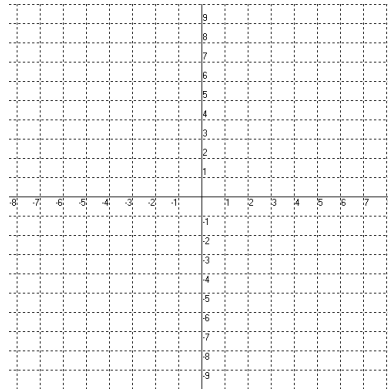
1. **Even and Odd Functions**

Each of the equations below represents an **EVEN FUNCTION**. Graph each one on your calculator, and tell me what they have in common.

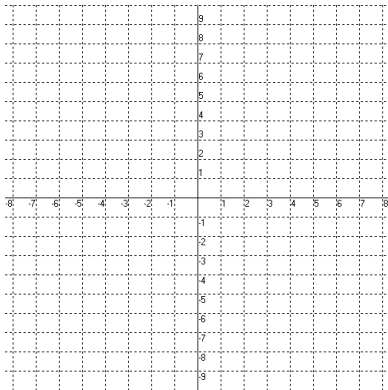
a.  $f(x) = \sqrt{x^2 - 1}$



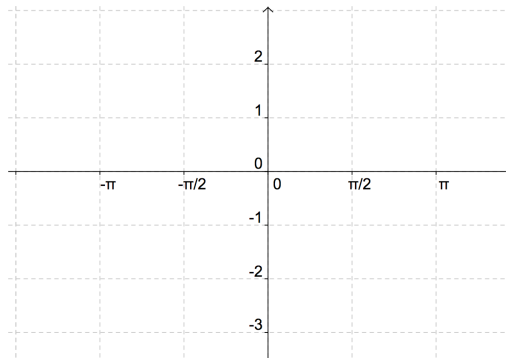
b.  $f(x) = |x| + 2$



c.  $f(x) = x^4 - 3x^2$



d.  $f(x) = \cos(x)$



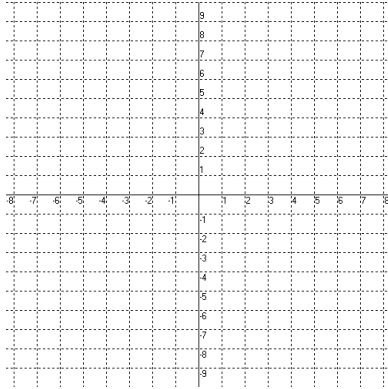
A function is EVEN if:

Otherwise known as: symmetry in the \_\_\_\_ -axis

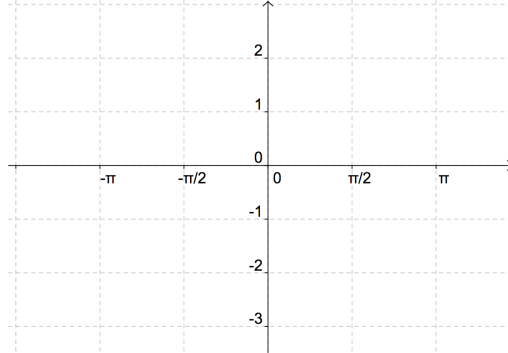
Test for EVEN functions:

2. Each of the equations below represents an **ODD FUNCTION**. Graph each one, and tell me what they have in common.

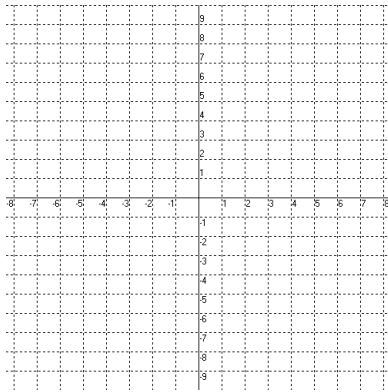
a.  $f(x) = x^3$



b.  $f(x) = \sin(x)$  (use zoom trig)



c.  $f(x) = x^5 - 4x^3$



A function is ODD if:

Otherwise known as symmetry in the \_\_\_\_\_

Test for ODD functions:

Can you draw an odd function that does not go through the origin?

Other symmetries:

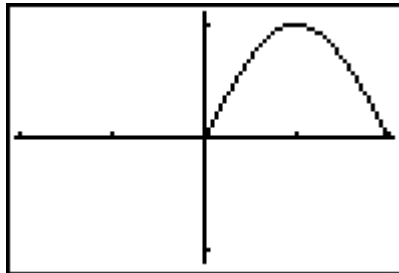
Symmetry in the x-axis:

Test for x-axis symmetry:

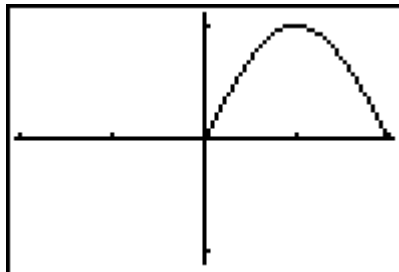
Symmetry in the line  $y=x$

Test for symmetry with  $y=x$ :

3. Assume the graph below represents half of an **EVEN FUNCTION**. Draw the other half of the graph.



4. Assume the graph below represents half of an **ODD FUNCTION**. Draw the other half of the graph.

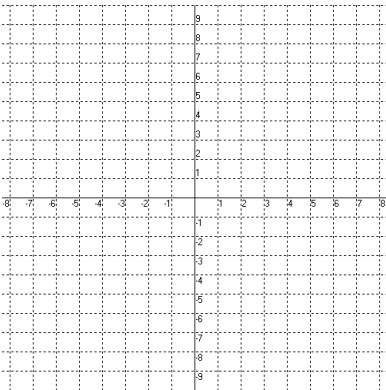


5. Assume function  $f$  is an **odd function**. If  $f$  contains the point  $(-1,3)$ , it must also contain the point \_\_\_\_\_.

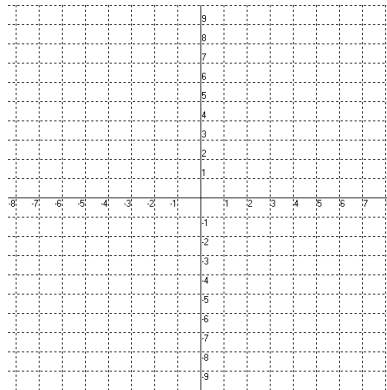
6. Assuming function  $g$  is an **even function**. If  $g$  contains the point  $(-1,3)$ , it must also contain the point \_\_\_\_\_.

7. Let  $f(x) = 2x-3$ . Sketch each graph.

a.  $y = -f(x)$



b.  $y = |f(x)|$



c.  $y = f(-x)$

