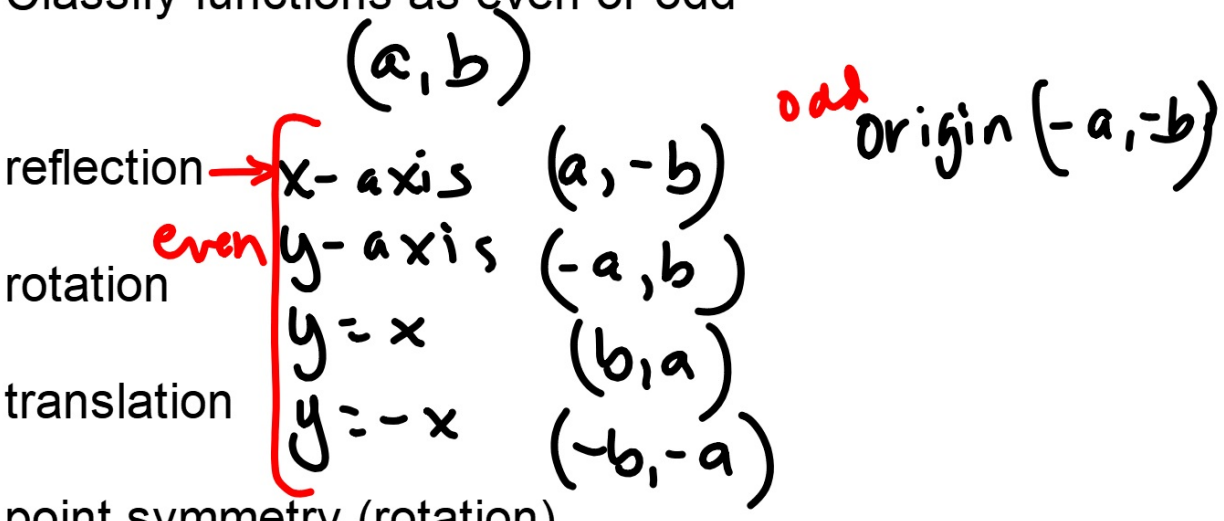
Trig 3.1

Use algebraic tests to determine whether a graph is symmetrical
Classify functions as even or odd



point symmetry (rotation)

line symmetry (reflection)

activity: letters

$x = \pm\sqrt{12 - 8y^2}$

$a = \pm\sqrt{12 - 8b^2}$

$a = \pm\sqrt{12 - 8b^2}$

$-a = \pm\sqrt{12 - 8b^2}$

(a, b)

x-axis $(a, -b)$ yes

y-axis $(-a, b)$ yes

$x^2 = 12 - 8y^2$

$\frac{x^2}{-8} - \frac{12}{-8} = y^2$

$y^2 = \sqrt{-\frac{1}{8}x^2 + 1.5}$

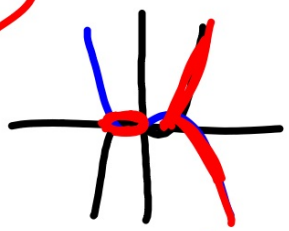
$y = \sqrt{-\frac{1}{8}x^2 + 1.5}$

$y = \sqrt{-0.125x^2 + 1.5}$

37. $|y| = x^3 - x$

$|b| = a^3 - a$

(a, b)



x-axis $(a, -b)$ yes $|-b| = a^3 - a$

y-axis $(-a, b)$ $|b| = -a^3 + a$ no

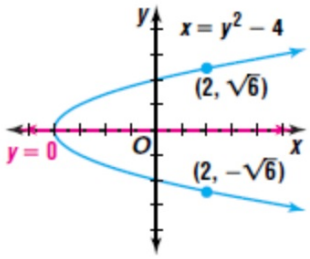
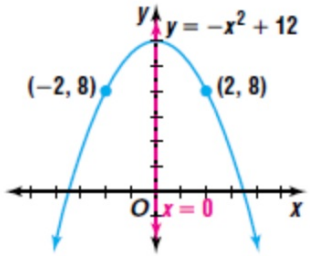
$y = x^3 - x$

Symmetry with Respect to the Origin

The graph of a relation S is symmetric with respect to the origin if and only if $(a, b) \in S$ implies that $(-a, -b) \in S$.

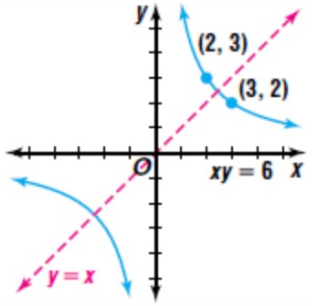
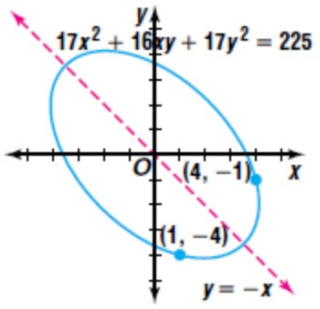
$(a, b) \in S$ means the ordered pair (a, b) belongs to the solution set S.

(a,b) and (-a,-b)
"Rotation"= symmetric with origin

Symmetry with Respect to the:	Definition and Test	Example
x-axis		
y-axis		

(a,b) maps to

(a,b) maps to

Symmetry with Respect to the Line:	Definition and Test	Example
$y = x$		
$y = -x$		

(a,b) maps to

(a,b) maps to

Test each possibility: yes or no

2 Determine whether the graph of x [redacted] is symmetric with respect to the x-axis, y-axis, the line $y = x$, the line $y = -x$, or none of these.

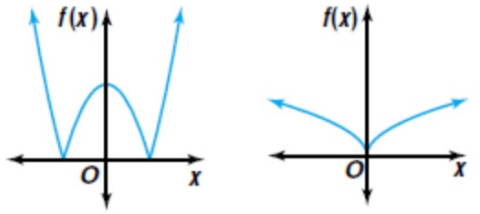
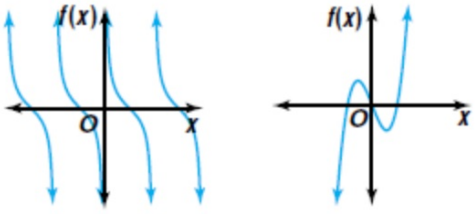
a) b) c) d)

☆ $xy=6$

☆ $y=x^2+6$

$x^2+y^2=25$

$x=y^2-1$

even functions	odd functions
	
symmetric with respect to the *y*-axis	symmetric with respect to the origin

reflect y-axis

rotate
180