

### 3.1 Symmetry

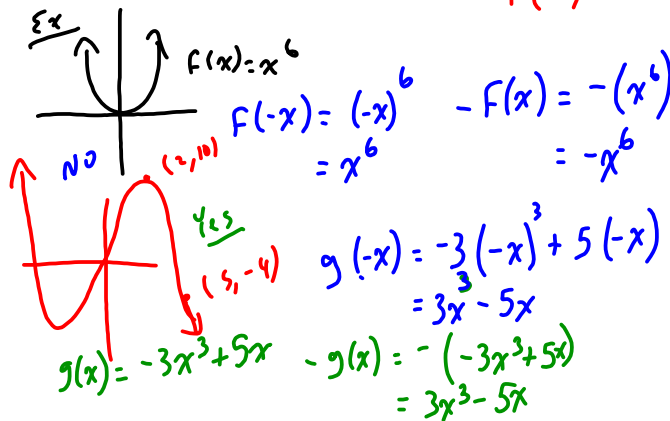
Pt. Symmetry - A fig. that is symmetric w/ respect to a given pt. can be rotated  $180^\circ$  about that point & appears unchanged.



Symmetry w/ respect to the origin - The graph of a relation  $S$  is symmetric w/ respect to the origin iff  $(a,b) \in S$  implies  $(-a,-b) \in S$

pts  $(a,b)$  belongs to the solution set  $S$

A Fn. has a graph that is symmetric w/ respect to the origin if  $f(-x) = -f(x)$



line symmetry - Graphs that can be folded along the line of sym. so the 2 halves match exactly

subst.  
 $x$ -axis  $\rightarrow$  Test:  $(a,b)$  &  $(a,-b)$   
 $y$ -axis  $\rightarrow$  " "  $(-a,b)$   
 $y=x$   $\rightarrow$  " "  $(b,a)$   
 $y=-x$   $\rightarrow$  " "  $(-b,-a)$

Ex 2  
 pg. 130

Assign  
 pg. 134  
 15-27 odd  
 28-30