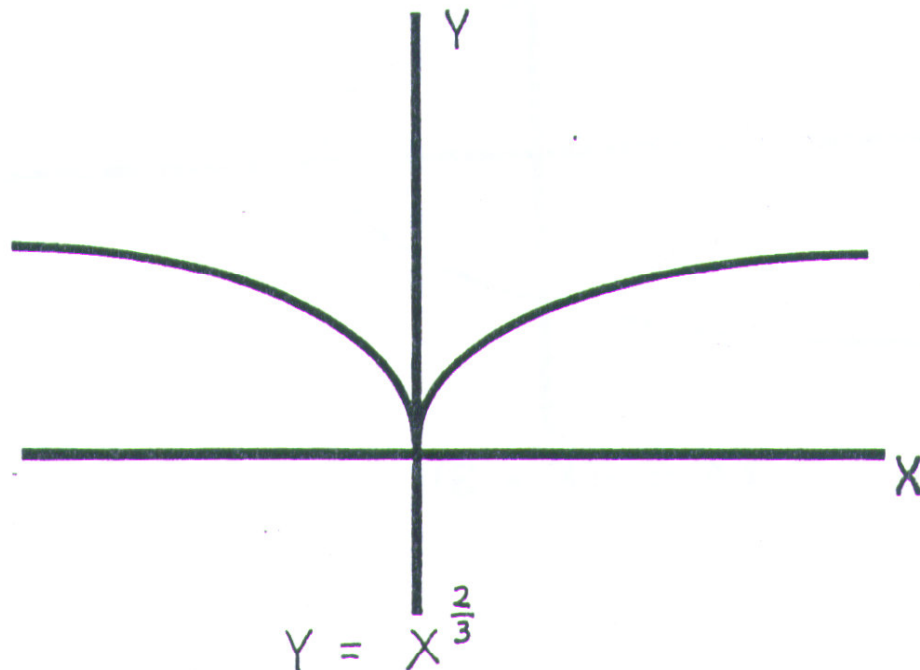


CURVE SKETCHING  
S Y M M E T R Y

Y-AXIS SYMMETRY

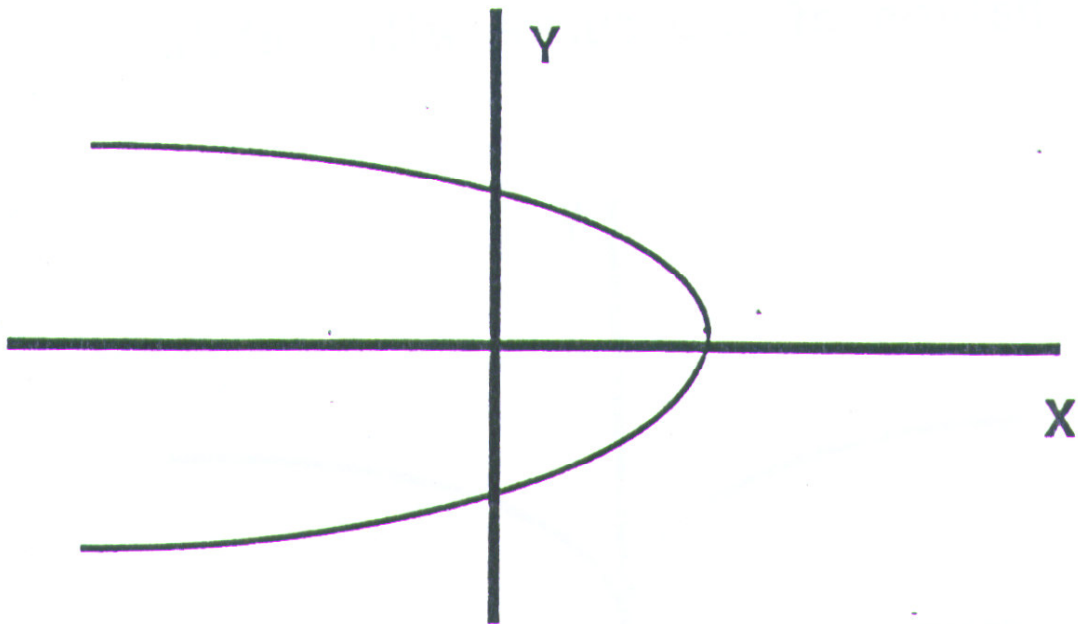
1.  $f(x) = f(-x)$
2.  $f(x,y) = f(-x,y)$
3. Replace  $x$  by  $-x$  and the value of  $Y$  does not change.
4. Fold about the  $Y$ -axis and the two halves of the curve will match.



CURVE SKETCHING  
SYMMETRY

X-AXIS SYMMETRY

1.  $f(x) = -f(x)$
2.  $f(x,y) = f(x,-y)$
3. Replace  $Y$  by  $-Y$  and the value of  $X$  does not change.
4. Fold about the  $X$ -axis and the two halves of the curve will match.

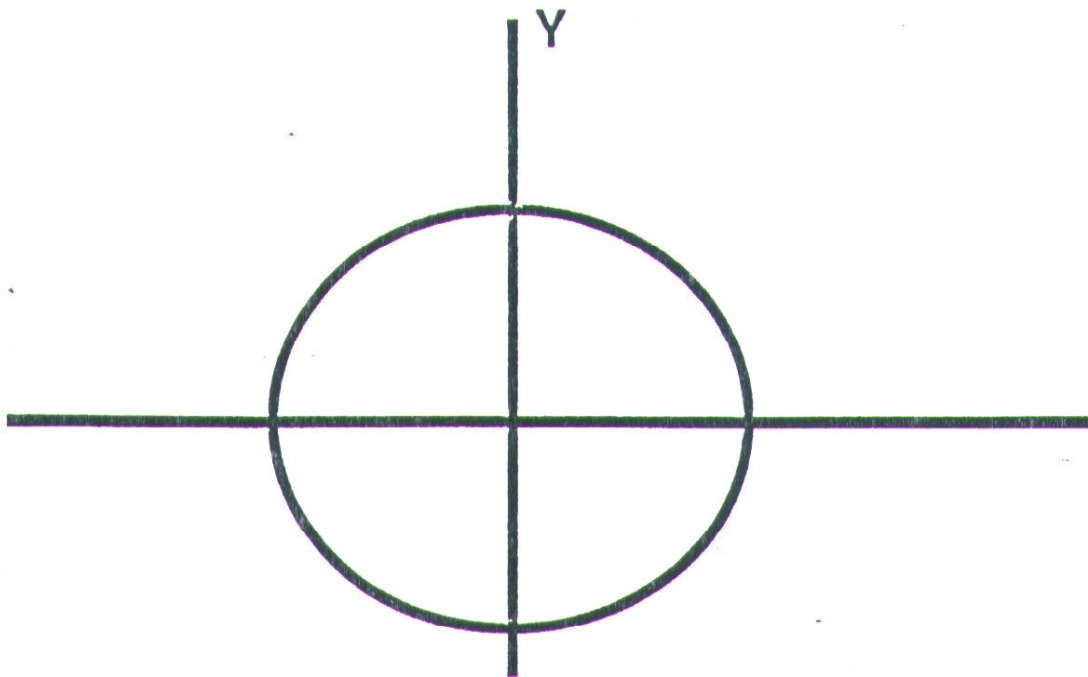


$$Y^2 = -(X - 3)$$

CURVE SKETCHING  
SYMMETRY

ORIGIN SYMMETRY

1.  $f(x) = -f(-x)$
2.  $f(x,y) = f(-x,-y)$
3. Replace  $Y$  by  $-Y$  and  $X$  by  $-X$  and the relationship remains the same.
4. Fold about the  $X$ -axis, fold about the  $Y$ -axis and the sections of the curve will match.



$$X^2 + Y^2 = 4$$