Section 2.2 – Symmetry

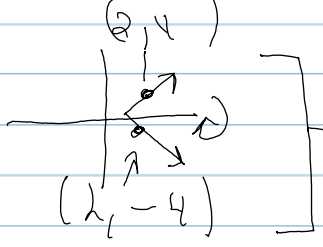
- $y = x^1$ ← highest power for $y=1$, and for $x=1$

- $y = x^2$ ← Parabola
- $x = y^2$
- $y = |x|$
- $x = |y|$
- $y = x^3$
- $x = \sqrt[3]{y}$
- $y = \sqrt{x}$
- $y = \frac{1}{x}$
- $x^2+y^2 = r^2$
- $ax^2+y^2 = r^2$
- $x^2-y^2 = r^2$

– Symmetry

- x, y, and origin-axis Symmetry.

△ → Symmetry w/ respect to (WRT) the x-axis

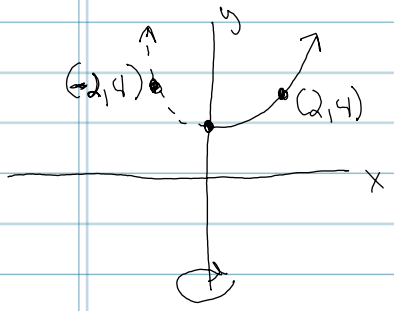


let $y = -y$

If the original equation remains the same after you process $y = -y$, then the graph has x-axis symmetry.

→

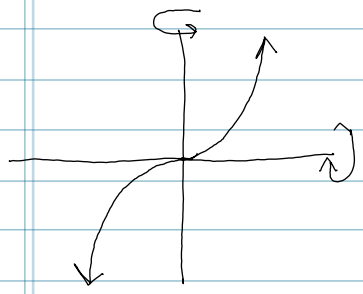
Symmetry W.R.T. the y-axis.



let $x = -x$

If the function changes, you have y-axis symmetry.

Symmetry WRT the origin



If $y = -y$ and $x = -x$

gives you the same function, you have symmetry W.R.T. the origin.

Ex

- $y + x^2 = 3$ — test for x
  $(-y) + x^2 = 3 \Rightarrow -y + x^2 = 3$ ← no match! ⟹ No symmetry W.R.T. x
- $y + (-x)^2 = 3$ — test for y
  $y + x^2 = 3$ ← match! ⟹ Symmetrical W.R.T. y-axis.
- $(-y) + (-x)^2 = 3$ — test for ori.
  $-y + x^2 = 3$ ← No match! ⟹ No origin symmetry

2.2 homework help...

If something looks tricky, talk to your professor, read your chapter, or talk to your SL!