

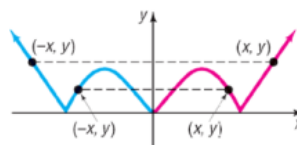
Section: 2.4

Objective: Symmetry and End Behavior of functions

Symmetry

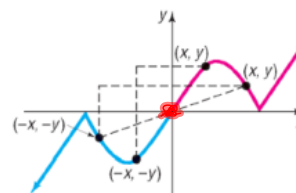
y-axis or **even** symmetry:

- The left and right sides are mirror images around the **y**-axis.
- The left and right sides would overlap if you fold the **y**-axis.

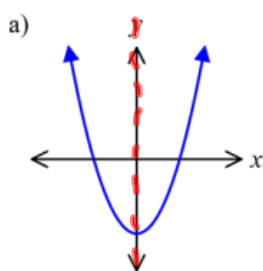


Origin or **odd** symmetry

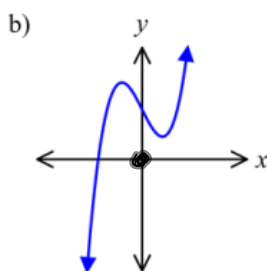
- When you rotate the graph around 180° , you end up with the same graph you started with.
- If you fold the graph along the *x*-axis and then again along the *y*-axis, the two halves would overlap.



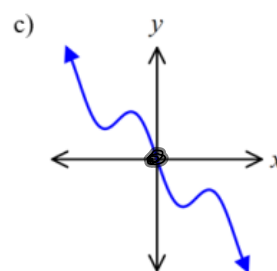
Examples: Determine what type of symmetry each function has (even, odd, or neither).



EVEN



neither

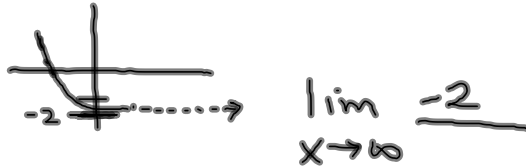


ODD

End Behavior

End behavior describes what is happening to the **y-coordinates** of the graph as you move left ($x \rightarrow -\infty$) or as you move right ($x \rightarrow \infty$).

- **Left end behavior** looks like this: $\lim_{x \rightarrow -\infty} f(x) = \underline{\quad}$.
- **Right end behavior** looks like this: $\lim_{x \rightarrow \infty} f(x) = \underline{\quad}$.
- **Arrow pointing up:** Write ∞
- **Arrow pointing down:** Write $-\infty$
- **Endpoint (no arrow):** Write D.N.E. (does not exist)
- **Asymptote or flat end with arrow:** Write y-coordinate of asymptote or flat part



Examples: Describe the end behavior of each graph using limits.

