

Date:

Section:

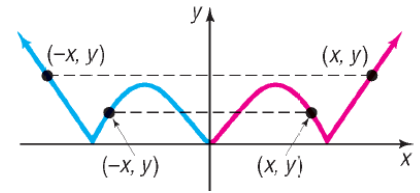
SM 2

Objective:

Symmetry

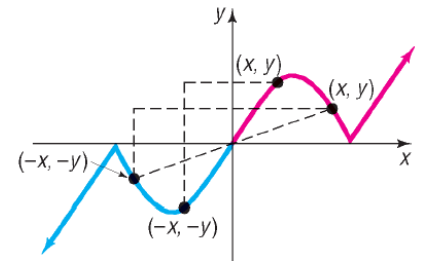
y-axis or _____ *symmetry*:

- The left and right sides are mirror images around the _____-axis.
- The left and right sides would overlap if you fold the graph along the _____-axis.

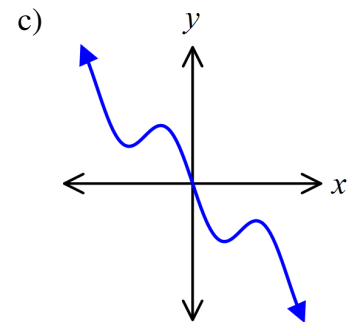
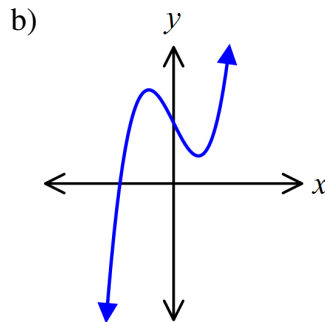
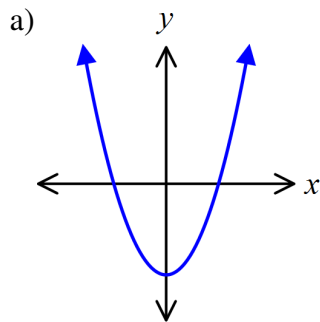


Origin or _____ *symmetry*

- 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).



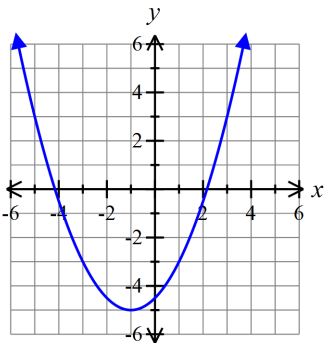
End Behavior

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: $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$.
- **Right end behavior** looks like this: $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$.
- **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.

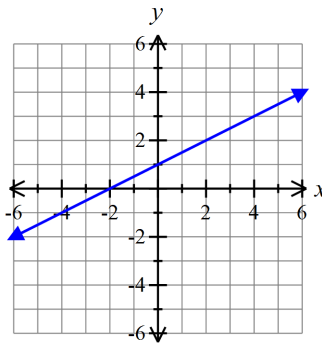
a)



Left: $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$

Right: $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

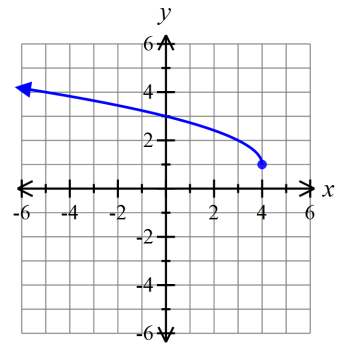
b)



Left: $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$

Right: $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

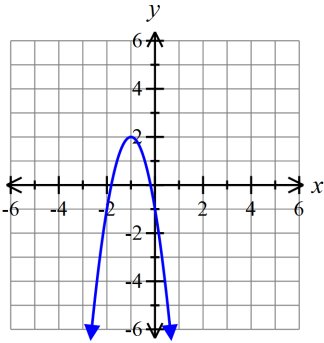
c)



Left: $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$

Right: $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

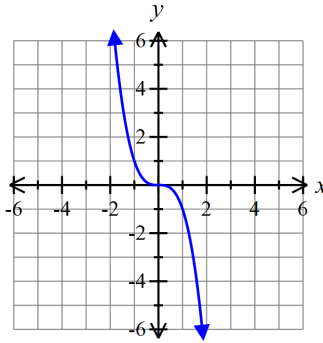
d)



Left: $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$

Right: $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

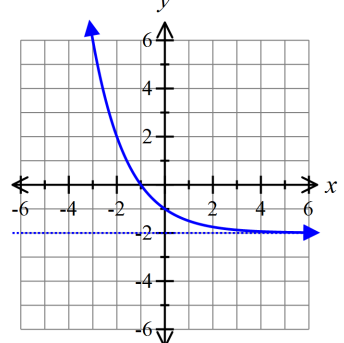
e)



Left: $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$

Right: $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

f)



Left: $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$

Right: $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$