

End Behavior: what the graph does at each end.

- To find end behavior, look at the (+/-) of the leading coefficient and the degree!

	Leading Coefficient		
	Positive	Negative	
Degree	Even	$\begin{matrix} \text{As } x \rightarrow -\infty \\ y \rightarrow +\infty \end{matrix}$ $\begin{matrix} \text{As } x \rightarrow \infty \\ y \rightarrow \infty \end{matrix}$	$\begin{matrix} \text{As } x \rightarrow -\infty \\ y \rightarrow -\infty \end{matrix}$ $\begin{matrix} \text{As } x \rightarrow \infty \\ y \rightarrow -\infty \end{matrix}$
	Odd	$\begin{matrix} \text{As } x \rightarrow -\infty \\ y \rightarrow -\infty \end{matrix}$ $\begin{matrix} \text{As } x \rightarrow \infty \\ y \rightarrow \infty \end{matrix}$	$\begin{matrix} \text{As } x \rightarrow -\infty \\ y \rightarrow \infty \end{matrix}$ $\begin{matrix} \text{As } x \rightarrow \infty \\ y \rightarrow -\infty \end{matrix}$

Calc Help
 $y = -x$
 $y = -x^3$

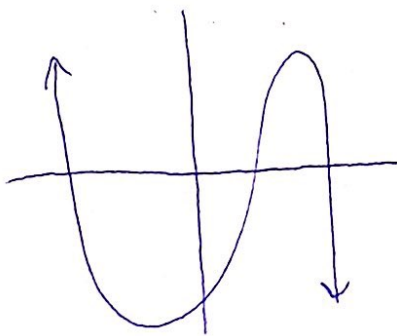
- Even polynomials point in the same direction.
- Odd polynomials point in opposite directions.

Notation:

As $x \rightarrow -\infty$
 $y \rightarrow ?$

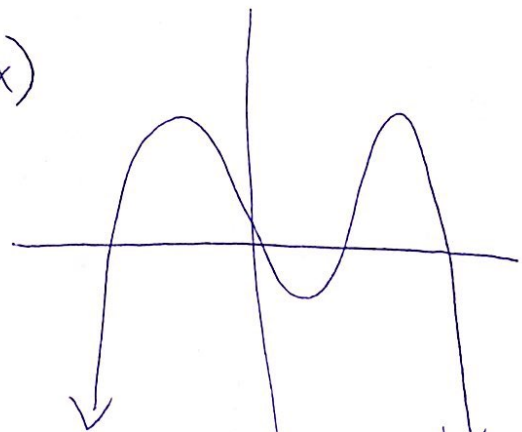
As $x \rightarrow \infty$
 $y \rightarrow ?$

Ex)



As $x \rightarrow -\infty$ $y \rightarrow \infty$ As $x \rightarrow \infty$ $y \rightarrow -\infty$

Ex)



As $x \rightarrow -\infty$ $y \rightarrow -\infty$ As $x \rightarrow \infty$ $y \rightarrow \infty$

Ex) $-3x^9 + 5x^3 + 2$

As $x \rightarrow -\infty$ $y \rightarrow \infty$ As $x \rightarrow \infty$ $y \rightarrow -\infty$

Ex) $4x^2 + 3x - 1$

As $x \rightarrow -\infty$ $y \rightarrow \infty$ As $x \rightarrow \infty$ $y \rightarrow \infty$

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