

Name: _____

Date: _____

End Behavior:

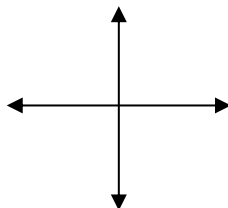
Look _____ and _____, to figure out what's happening _____ and _____.

$$x \rightarrow +\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

$$x \rightarrow -\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

Graphically:

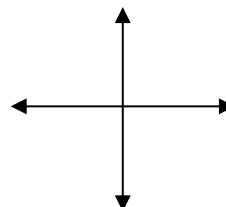
1.



$$x \rightarrow +\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

$$x \rightarrow -\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

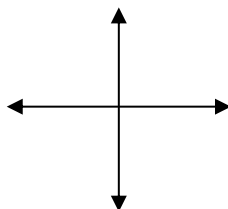
2.



$$x \rightarrow +\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

$$x \rightarrow -\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

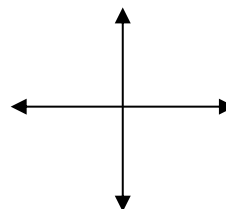
3.



$$x \rightarrow +\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

$$x \rightarrow -\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

4.



$$x \rightarrow +\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

$$x \rightarrow -\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

Algebraically:

5. $f(x) =$

6. $f(x) =$

7. $f(x) =$

$$x \rightarrow +\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

$$x \rightarrow -\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

$$x \rightarrow +\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

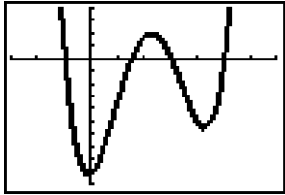
$$x \rightarrow -\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

$$x \rightarrow +\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

$$x \rightarrow -\infty \quad f(x) \rightarrow \underline{\hspace{2cm}}$$

Extrema: are _____ in the graph.

- If you are given a _____, take the turns and _____ 1 to get the least possible degree of the polynomial.



Least Possible Degree:

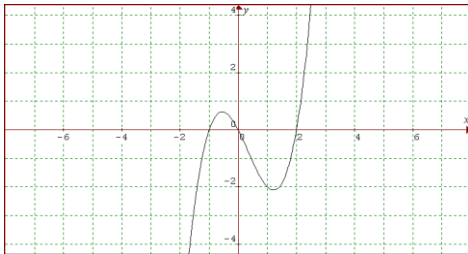
- If you are given the _____, take the degree and _____ 1 to get the number of extrema.

$$f(x) = 2x^3 - 3x^2 + 5$$

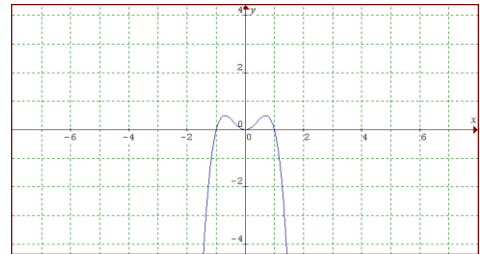
Number of Extrema:

Graphically, what is the least possible degree?

8.



9.



Algebraically, what is the number of extrema?

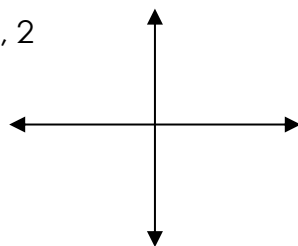
10. $f(x) = x^4 + 2x^3 - 3x$

11. $f(x) =$

12. $f(x) =$

Sketching: Given the polynomial and zeros, sketch a graph and determine the characteristics

13. $f(x) = x^2 + 8x - 20$
given zeros: $-10, 2$

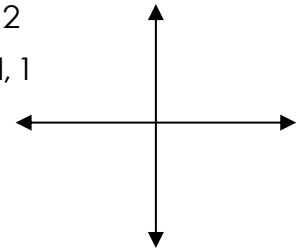


of Zeros: _____ Y-Int: _____

$x \rightarrow +\infty$ $f(x) \rightarrow$ _____

$x \rightarrow -\infty$ $f(x) \rightarrow$ _____ # of extrema _____

14. $f(x) = x^3 + 2x^2 - x - 2$
given zeros: $-2, -1, 1$



of Zeros: _____ Y-Int: _____

$x \rightarrow +\infty$ $f(x) \rightarrow$ _____

$x \rightarrow -\infty$ $f(x) \rightarrow$ _____ # of extrema _____