

HOMWORK: END BEHAVIOR



DAY 5

NAME: _____

Find the degree, leading coefficient, and end behavior. Then draw a rough sketch.

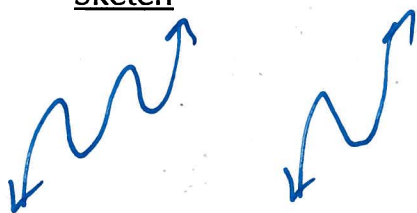
1. $f(x) = 3x^5 + x^3 + 10x^2 + 4x + 1$

Degree: 5 LC: 3

As $x \rightarrow +\infty$ then $f(x) \rightarrow \underline{\infty}$

As $x \rightarrow -\infty$ then $f(x) \rightarrow \underline{-\infty}$

Sketch



2. $f(x) = -(x+1)^3(x-5)^2$

Degree: 5 LC: -1

As $x \rightarrow +\infty$ then $f(x) \rightarrow \underline{-\infty}$

As $x \rightarrow -\infty$ then $f(x) \rightarrow \underline{\infty}$

Sketch



Find the degree of each function and end behavior.

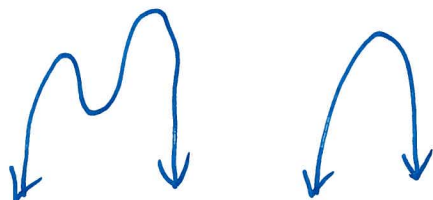
3. $f(x) = -3x^4 + 10x^3 + 4x^2 + 1$

Degree: 4 LC: -3

As $x \rightarrow +\infty$ then $f(x) \rightarrow \underline{-\infty}$

As $x \rightarrow -\infty$ then $f(x) \rightarrow \underline{-\infty}$

Sketch



4. $f(x) = 2(x+1)^3(x-5)$

Degree: 4 LC: 2

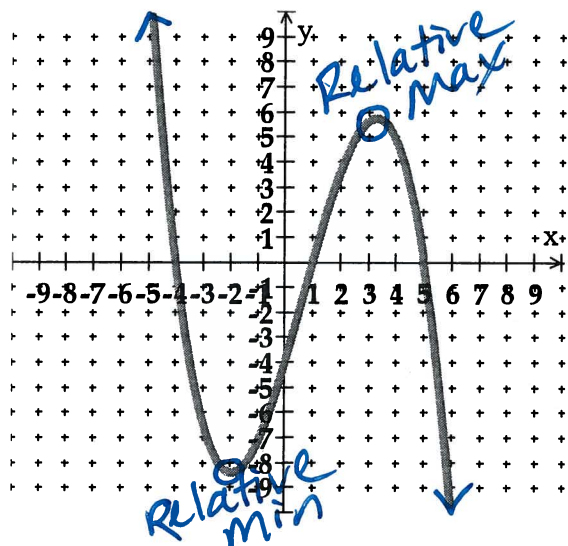
As $x \rightarrow +\infty$ then $f(x) \rightarrow \underline{\infty}$

As $x \rightarrow -\infty$ then $f(x) \rightarrow \underline{\infty}$

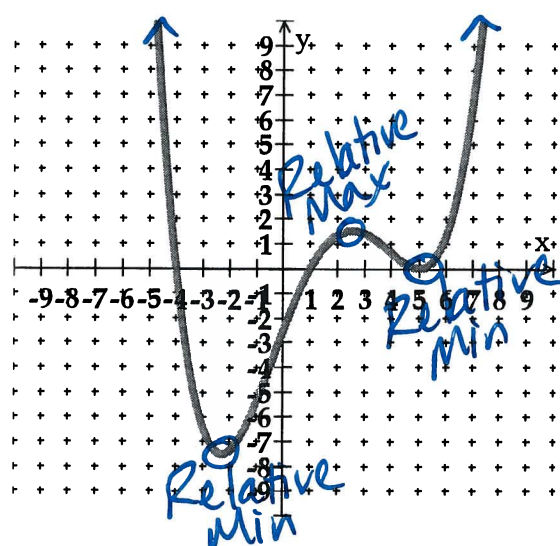
Sketch



5. Use the graph to answer the questions.



6. Use the graph to answer the questions.



A. End Behavior: As $x \rightarrow +\infty, f(x) \rightarrow -\infty$
As $x \rightarrow -\infty, f(x) \rightarrow \infty$

B. Identify the real zeros of the graph:

$x = -4, 1, 5$

C. Circle the turning points on the graph. Determine they are relative maximums or minimums, absolute maximums or minimums.

D. Determine the intervals where the polynomials are

Increasing: $(-2, 3.2)$

Decreasing: $(-\infty, -2) \cup (3.2, \infty)$

E. Determine the domain and range.

Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$

A. End Behavior: As $x \rightarrow +\infty, f(x) \rightarrow \infty$
As $x \rightarrow -\infty, f(x) \rightarrow \infty$

B. Identify the real zeros of the graph:

$x = -4, 1, 5$

C. Circle the turning points on the graph. Determine they are relative maximums or minimums, absolute maximums or minimums.

D. Determine the intervals where the polynomials are

Increasing: $(-2.5, 2.5)$

Decreasing: $(-\infty, -2.5) \cup (2.5, \infty)$

E. Determine the domain and range

Domain: $(-\infty, \infty)$

Range: $(-7.5, \infty)$