

You will need to use either [desmos.com](https://www.desmos.com) or a calculator to graph the following graphs.

BEFORE you put the function in your calculator, describe the end behavior and number of zeros.

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

Fill in the table with zeros, relative min/max, and y-intercept. Graph using the graph to the right. →

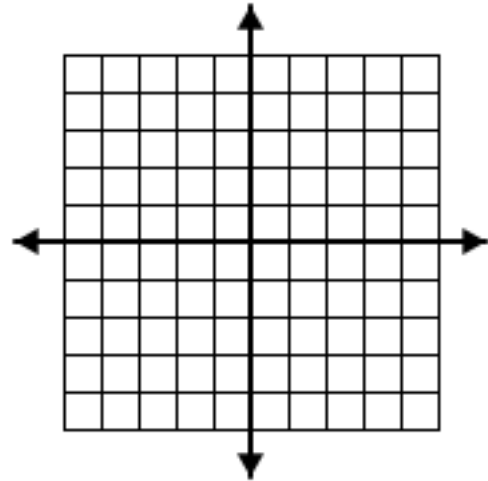
x	f(x)

State the intervals of

Increase:

Decrease:

1.



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

Fill in the table with zeros, relative min/max, and y-intercept. Graph using the graph to the right. →

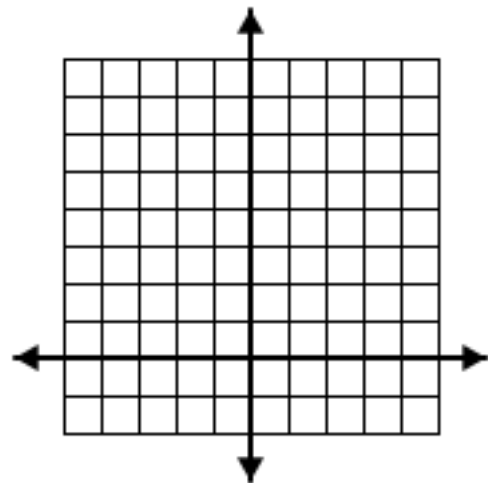
x	f(x)

State the intervals of

Increase:

Decrease:

2.



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

Fill in the table with zeros, relative min/max, and y-intercept. Graph using the graph to the right. →

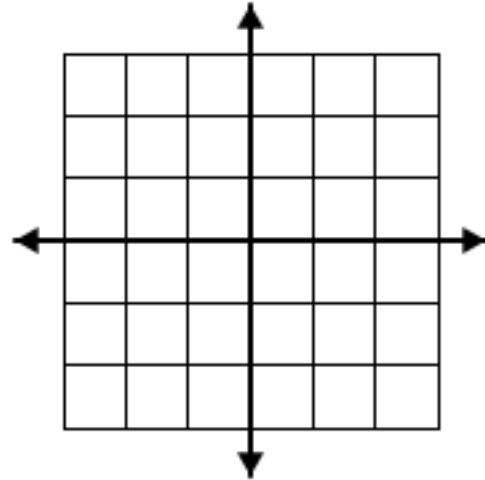
x	f(x)

State the intervals of

Increase:

Decrease:

3.



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

Fill in the table with zeros, relative min/max, and y-intercept. Graph using the graph to the right. →

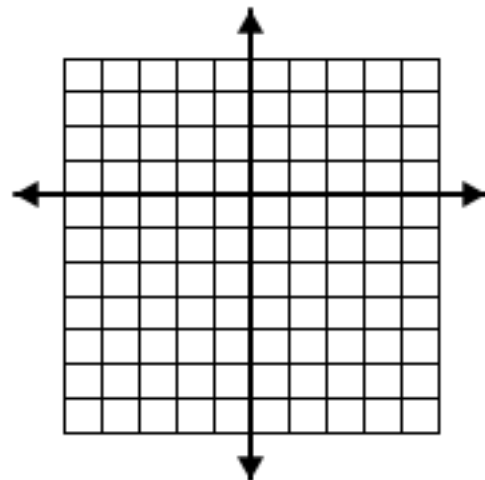
x	f(x)

State the intervals of

Increase:

Decrease:

4.



5. Use Long Division to divide $(x^4 + 2x^2 - x + 5)$ by $(x^2 - x + 1)$

6. Use Synthetic Division to divide $(x^3 - 3x^2 - 7x + 6)$ by $(x - 2)$

You will need access to [desmos.com](https://www.desmos.com) or a calculator to graph the polynomials.

A RELATIVE MAX occurs where the graph changes from _____ to _____.

A RELATIVE MIN occurs where the graph changes from _____ to _____.

Example:

Graph $f(x) = -x^3 + 7x^2 - 11x - 2$

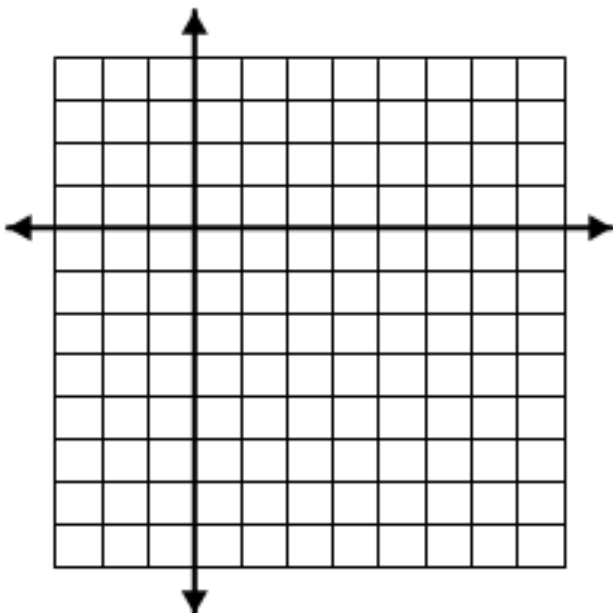
Describe the end behavior: _____

How many possible zeros? _____

Put the function in your calculator. Adjust the WINDOW if needed.

Fill in the table with the
 y-intercept,
 the real zeros (x-intercepts),
 and any relative maximum and relative minimums.

x	f(x)



State the open intervals where the function is increasing and decreasing.

Increasing:

Decreasing: