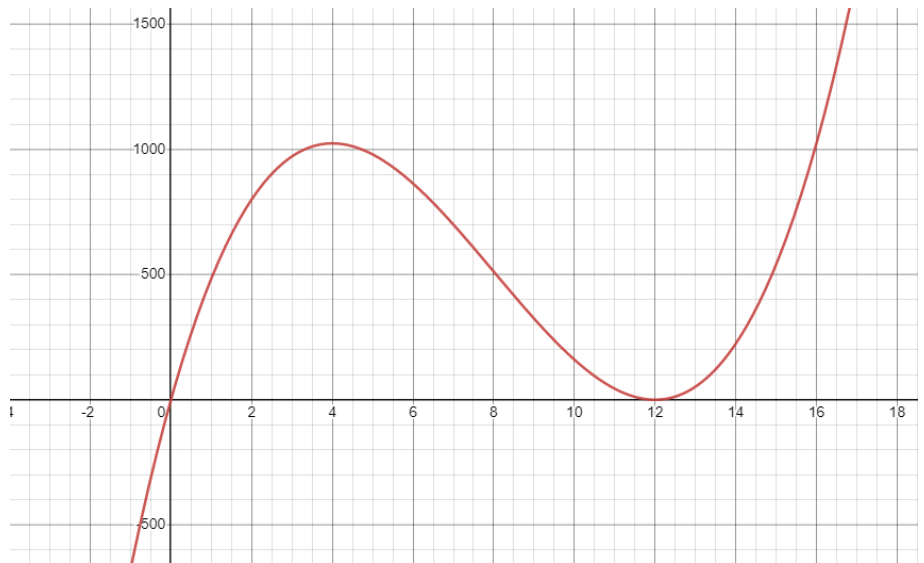


Lesson 1.5 -Analyzing Functions, Zeroes, Extrema, and Even/Odd Functions

1. Consider the function

$$f(x) = (24 - 2x^2) \cdot x$$

- a. What is the domain?
- b. What is the range?
- c. Is the graph continuous?
- d. Identify any “zeroes” on the graph.
- e. Identify any relative minima or maxima,
- f. Identify intervals where the function is increasing or decreasing.



**I. Graphically Analyzing Functions**

2. Graph  $f(x) = x^2 - 4$

*Practice using your calculator to help graph.*

- a. Find the “zeroes” of the function.
- b. Does the function have a *relative* minimum or maximum? Where?
- c. Is the function even or odd? How can you tell?

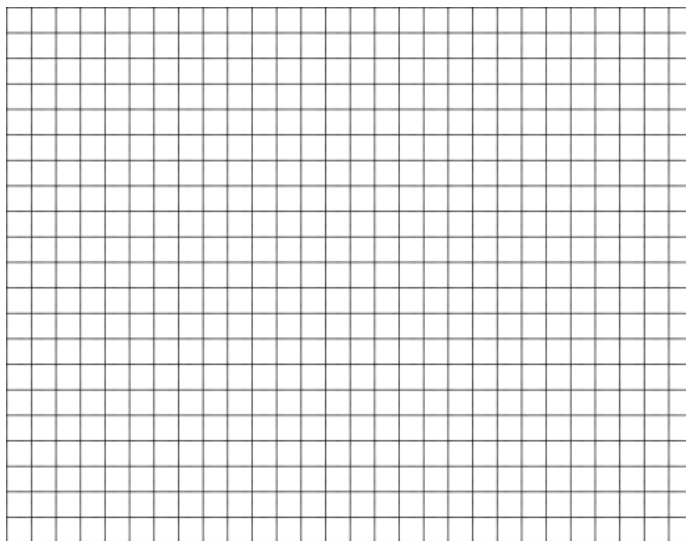


**Even function:**

**Odd function:**

3. Sketch the graph of the function:  $f(x) = x^3 - x$   
Use your calculator to help you. Then find the values below.



Domain:

Range:

Zeros:

Relative minimum/maximum:

Even, odd, or neither?

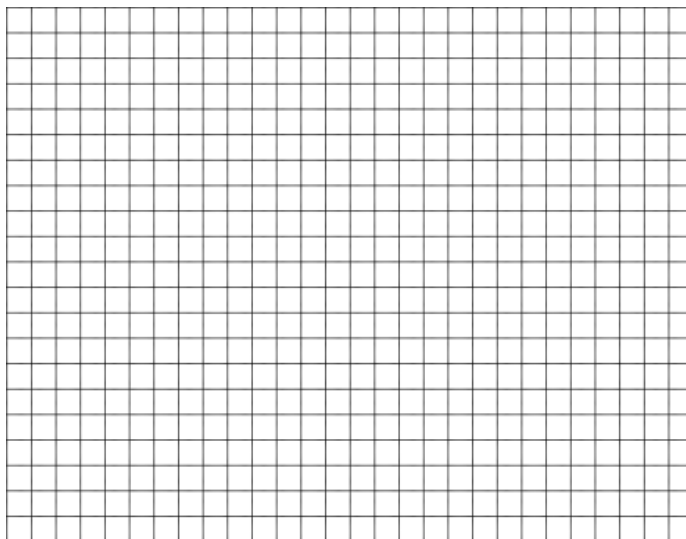
Increasing Intervals:

Decreasing Intervals:

4. Sketch the graph of the function:

$$f(x) = x^4 - 2x^2 - 1$$

Use your calculator to help you. Then find the values below.



Domain:

Range:

Zeros:

Relative minimum/maximum:

Even, odd, or neither?

Increasing Intervals:

Decreasing Intervals:

## II. Algebraically Analyzing Functions

5. Analyze the following functions WITHOUT a calculator. Find the zeroes. Then determine if the function is even/odd or neither.

a.  $f(x) = -2x^3 + 6x$

b.  $f(x) = 3x^2 - 27x + 24$

c.  $f(x) = 5x^2 - 20$

## III. Practice on Your Own

Get practice with the document & graphing system on your calculator.