

Warm-Up

For each of the following quadratic functions in standard form

1. Calculate the coordinates of the vertex
2. Use the coordinates from step 1 to write the vertex form equation of the same function.
3. In Desmos, type the original function and the function from step 1. Do the functions overlap? Why or why not?

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

$$(b) g(x) = -x^2 + x$$



<https://www.darpa.mil/news-events/2015-06-06a>

FIXED MINDSET

Intelligence is static

Avoid challenges

It's too hard

Expect reward without effort

Ignore feedback

Threatened by success of others



GROWTH MINDSET

Intelligence can be developed

Embrace challenges

I can train my brain.

Effort is a path to mastery

Learn from feedback

Inspired by success of others



Suggestions

1. Minimize distractions in class.
 - Phone out of sight
 - Resist the temptation to talk to your friends during lecture
2. Take notes during class
3. Check notes after class for completion/understanding
4. Don't rush through the exercises.
5. Bring complete notes to test.

Function Families

Today's Plan:

1. Lesson

- a) Definition of function families
- b) Characteristics of function families
- c) Parent functions
- d) Transformations

2. Practice exercises in Desmos

Students will know that:

1. members of the same function family share common characteristics.
2. any member of a family can be obtained from a parent function by executing a list of transformations.

Students will be able to:

1. describe in natural language the transformations applied to obtain a given graph from the graph of the parent graph.
2. sketch the graph of a function given a list of transformations.



Human Families

A family a group of one or more parents and their children living together as a unit.

A family is a group of people who love and care for each other.

A member of the family includes any spouse, ancestors, children, grandchildren, great grandchildren, and spouses of children, grandchildren, and great grandchildren. A brother or sister of an individual is not a member of the family for this purpose. A legally adopted child of an individual will be treated as a child by blood. (irs.gov)

<https://www.irs.gov/charities-non-profits/charitable-organizations/member-of-the-family>

Function Families

A **family of functions** is a group of functions with graphs that display one or more similar characteristics.

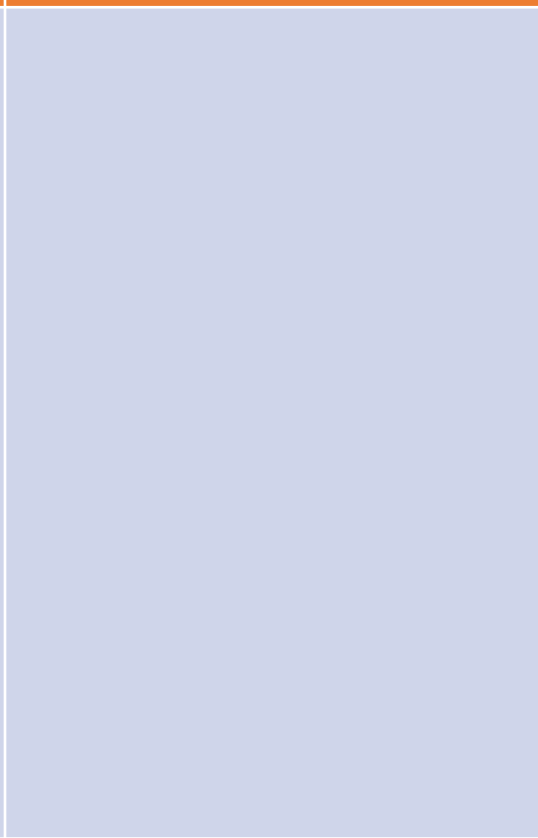
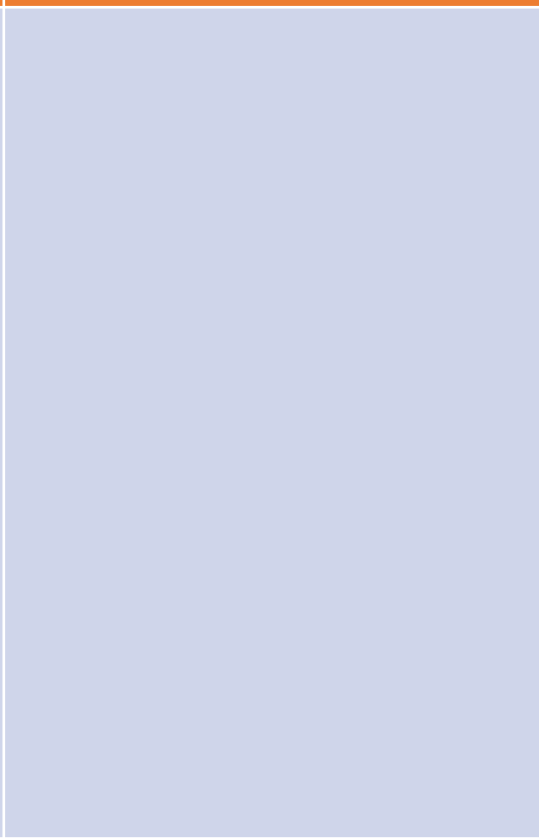
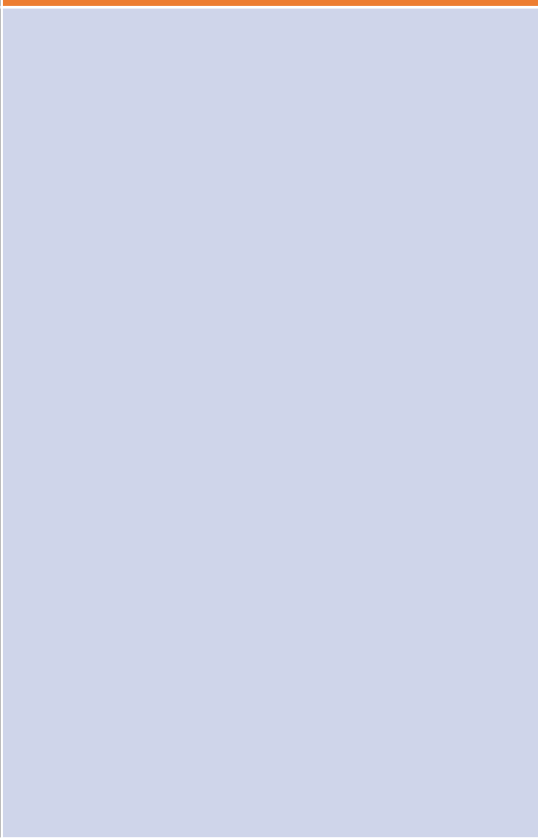
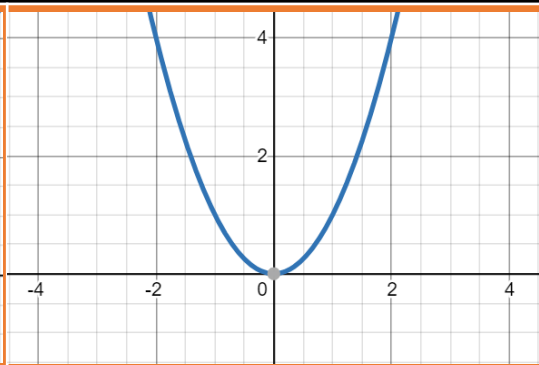
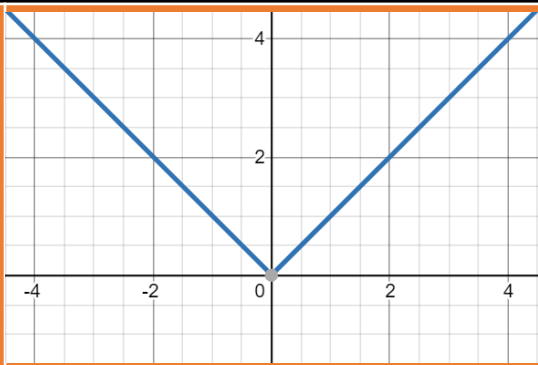
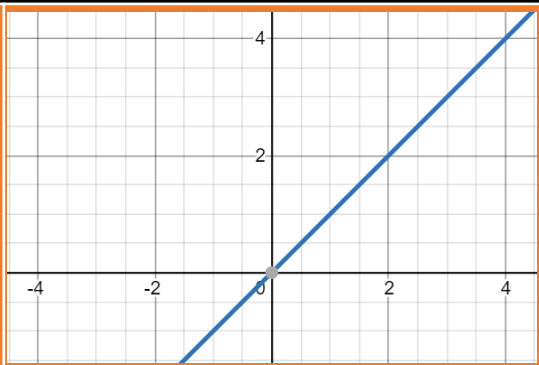
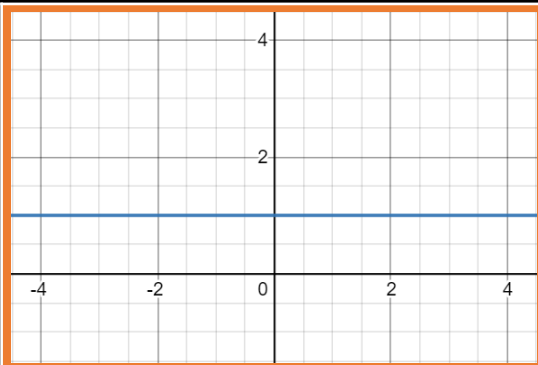
What functions did you study already?

Linear

Quadratic

Absolute Value

Constant





Charge

In-class:

Work on the practice problems in Desmos.

At-home:

Complete the Desmos activity assigned today.

Complete the Desmos activity assigned on Monday.

Keep working on the Delta Math assignments.