Math 20-2: Properties of Quadratic Functions

Objective: Graph a quadratic function.

Objective: Identify properties of quadratic functions: vertex, x-intercepts, y-intercept and an equation for the axis of symmetry.

What we saw in other math classes (linear function):

Given: $y = 2x - 8$

- Find at least six points (some positive x-values and some negative x-values, where x is zero) on the line using a table or mapping diagram:

x	y
-2	
-1	
0	
1	
2	
3	
4	
5	

Calculator Skills:

Window – tell your story

Trace – key in the x value, ENTER to find y value… repeat for more data

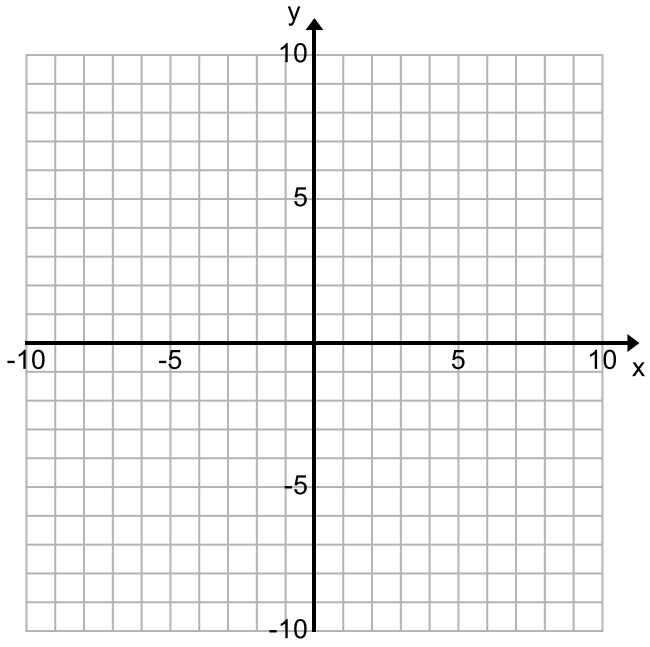
Table – show x and y values, up and down arrows

Table Setup – how to tell calculator what to start the table at and increase by

MODE: "Graph-Table" vs "Full"

Plot the points on a grid.

- Draw the line through the points.
- Identify the x-intercept.
- Identify the y-intercept.
- Use your calculator to see what you already know:
  - Graphing
  - Table of Values
  - Tracing

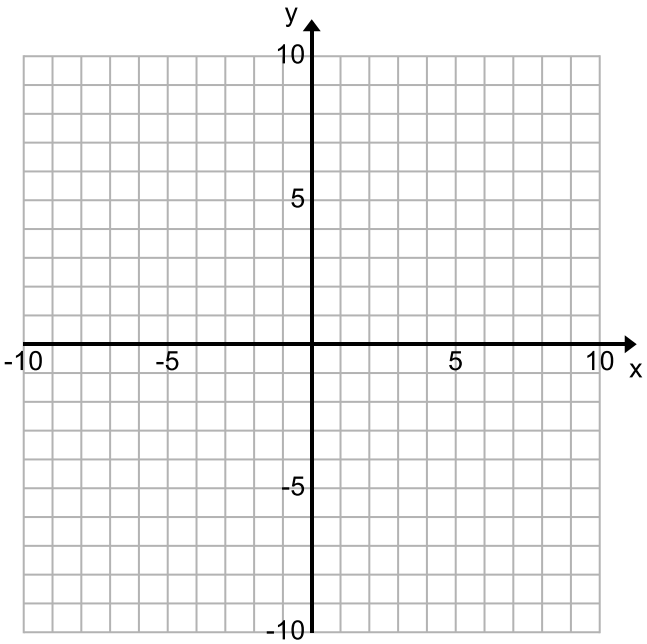


Something different, but same kind of skills (quadratic function):
Given: $y = x^2 - 2x - 8$

- Find at least six points (some positive x-values and some negative x-values, where x is zero) on the line using a table or mapping diagram:

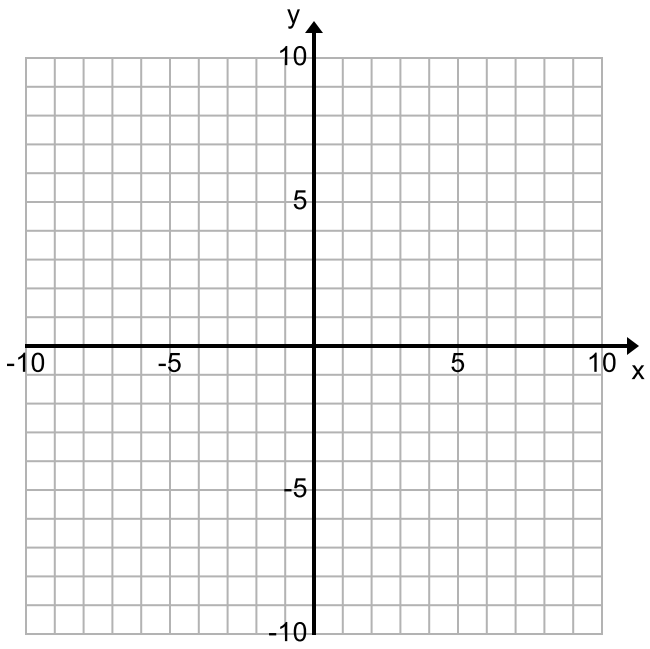
x	**y**
-3	
-2	
-1	
0	
1	
2	
3	
4	

- Plot the points on a grid.
- Draw the curved line through the points.
- Identify the x-intercept.
- Identify the y-intercept.
- Identify the lowest point on the graph.
- Draw a line the cuts the graph in half so that "the left side and right side would match"
- Use your calculator to see what you already know:
    - Graphing
    - Table of Values
    - Tracing



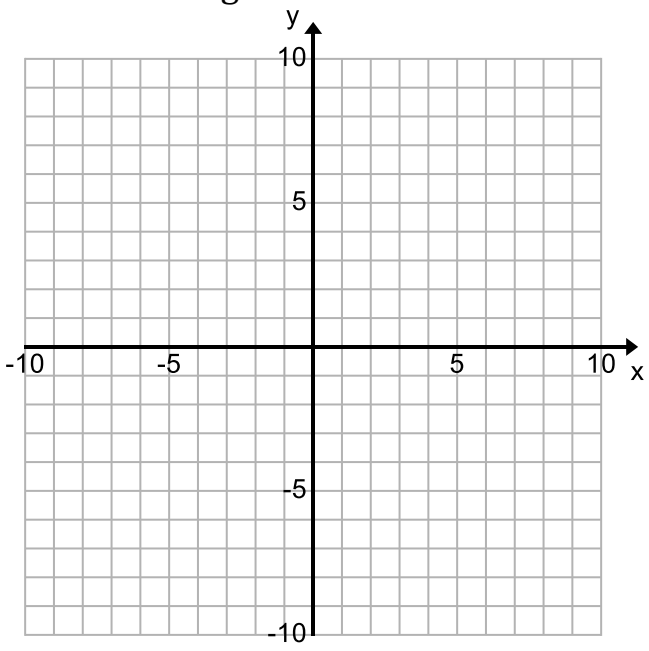
Another what we saw before:
Given: $y = -x + 6$

- Find at least six points (some positive x-values and some negative x-values, where x is zero) on the line using a table or mapping diagram:
- Plot the points on a grid.
- Draw the line through the points.
- Identify the x-intercept.
- Identify the y-intercept.
- Use your calculator to see what you already know:
    - Graphing
    - Table of Values
    - Tracing



Another something different, but same kind of skills:
Given: $y = -2x^2 + 8$

- Find at least six points (some positive x-values and some negative x-values, where x is zero) on the line using a table or mapping diagram:
- Plot the points on a grid.
- Draw the curved line through the points.
- Identify the x-intercept.
- Identify the y-intercept.
- Identify the highest point on the graph.
- Draw a line the cuts the graph in half so that "the left side and right side would match"
- Use your calculator to see what you already know:
    - Graphing
    - Table of Values
    - Tracing



Summary of quadratic functions:

What in the equation results in being quadratic?

What are some graph properties of quadratics?