# Exploring Quadratic Functions

## Key Features of Quadratic Functions on Graphs

A _____ is a mathematical relation for which each element of the domain corresponds to exactly one element of the range.

_____ functions are non-linear and create a U-shaped curve called a _____.
The most basic quadratic function is _____, which is the parent function.

### Finding Key Features from a Graph

Vertex and Axis of Symmetry:

y-intercept:

x-intercept(s):

**Practice:** Complete the practice problem(s) in the space below. Be sure to check your work.

## Key Features of Quadratic Functions in Standard Form

**Formula:** Standard Form of a Quadratic Function

$f(x) - ax^2 + bx + c$, where a ≠ 0.

### Finding Key Features from Standard Form

Vertex and Axis of Symmetry:

y-intercept:

x-intercept(s):

**Practice:** Complete the practice problem(s) in the space below. Be sure to check your work.

**More Key Features of Quadratic Functions**

**Finding Additional Key Features**

| Key Features | Opening Upward<br>a > 0 | Opening Downward<br>a < 0 |
|---|---|---|
| Domain | | |
| Range | | |
| End Behavior | | |
| Positive or Negative | | |
| Increasing or Decreasing | | |

**Think Like a Mathematician:** Why are the x-intercepts not included when describing the intervals on which the function is positive or negative?

**Practice:** Complete the practice problem(s) in the space below. Be sure to check your work.

**Key Features in the Real World**

**Practice:** Complete the practice problem(s) in the space below. Be sure to check your work.

**Please use additional paper as needed to complete the Self-Check. You may also choose to print the lesson's Sum It Up page.**