

# Quadratic Attributes and Equations

## Student Activity

Name \_\_\_\_\_  
Class \_\_\_\_\_

In this activity you will identify attributes of quadratic functions from an image. You will also write the equation of each quadratic function and check your work by graphing on the image.

1. The arc in the bridge in the image on page 1.1 is parabolic.

To turn the grid on press , 6: Grid, 3:Lined Grid.



- a) What is the vertex of the parabola?
- b) Does direction does this parabola face?
- c) When compared to the parent function  $f(x) = x^2$ , has this parabola been vertically stretched or compressed?
- d) Write the equation of the parabola that represents the arc of the bridge in vertex form.
- e) Graph your parabola to check your work. Do you need to make any adjustments?

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2. The arc of the water in the image on page 1.2 is parabolic.  
To turn the grid on press **menu**, 6: Grid, 3:Lined Grid.



- What are the zeros of this parabola?
- Does direction does this parabola face?
- When compared to the parent function  $f(x) = x^2$ , has this parabola been vertically stretched or compressed?
- Write the equation of the parabola that represents the arc of the water in factored form.
- Graph your parabola to check your work. Do you need to make any adjustments?

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3. A time lapse image of a ski jumper is shown at the right. The path of the athlete is parabolic. This image can be found on page 1.3 on your TI-Nspire. To turn the grid on press menu, 6: Grid, 3:Lined Grid.




- a) What is the vertex of the parabola?
- b) Does direction does this parabola face?
- c) When compared to the parent function  $f(x) = x^2$ , has this parabola been vertically stretched or compressed?
- d) Write the equation of the parabola that represents the path of the athlete in vertex form.
- e) Graph your parabola to check your work. Do you need to make any adjustments?

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4. The image on page 1.4 is of a rainbow rail at a local skatepark. This rainbow rail is approximately parabolic. To turn the grid on press , 6: Grid, 3:Lined Grid.



- What is the vertex of the parabola?
- Does direction does this parabola face?
- When compared to the parent function  $f(x) = x^2$ , has this parabola been vertically stretched or compressed?
- Write the equation of the parabola that represents the rainbow rail in vertex form.
- Graph your parabola to check your work. Do you need to make any adjustments?