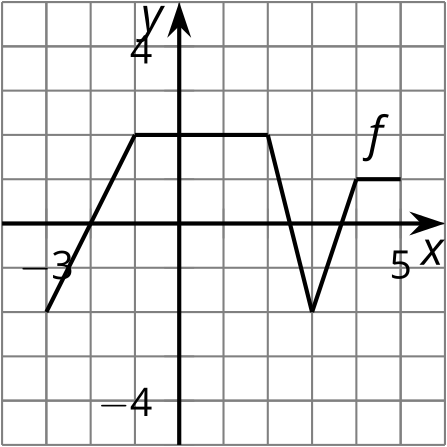
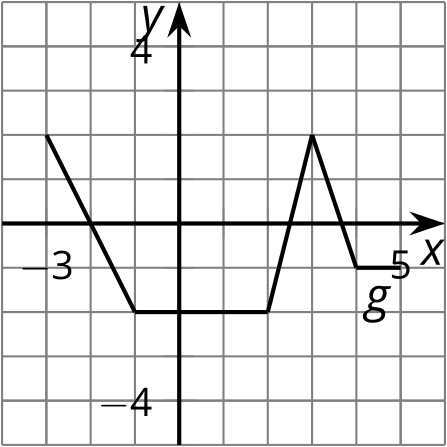
## Unit 5 Lesson 4: Reflecting Functions

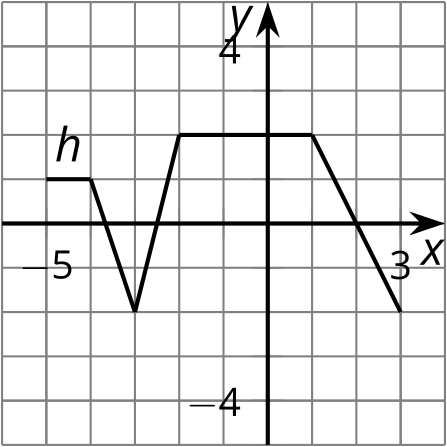
### 1 Notice and Wonder: Reflections (Warm up)

#### Student Task Statement

What do you notice? What do you wonder?



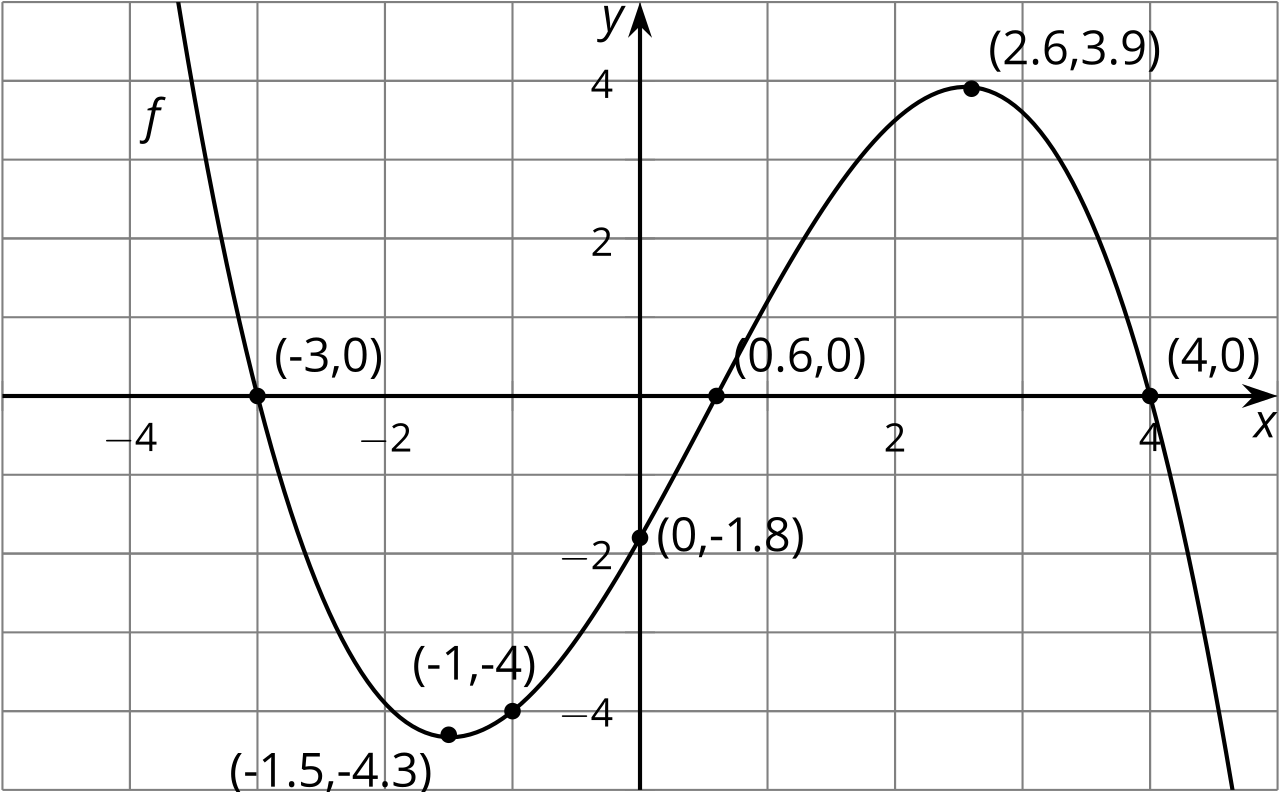




### 2 Reflecting Across

#### Student Task Statement

Here is the graph of function and a table of values.



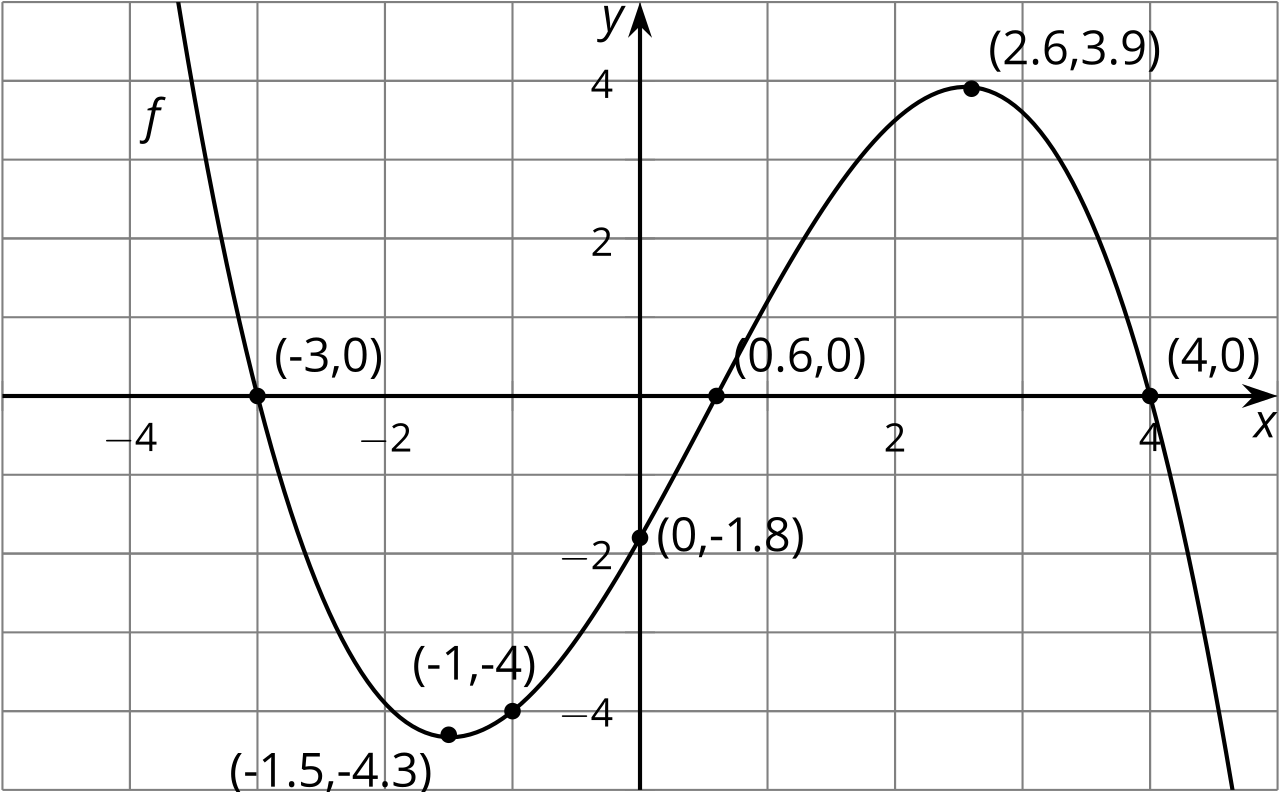
|  |  |  |
| --- | --- | --- |
| -3 | 0 |  |
| -1.5 | -4.3 |  |
| -1 | -4 |  |
| 0 | -1.8 |  |
| 0.6 | 0 |  |
| 2.6 | 3.9 |  |
| 4 | 0 |  |

1. Let be the function defined by . Complete the table.
2. Sketch the graph of on the same axes as the graph of but in a different color.
3. Describe how to transform the graph of into the graph of . Explain how the equation produces this transformation.

### 3 Reflecting Across a Different Way

#### Student Task Statement

Here is another copy of the graph of from the earlier activity. This time, let be the function defined by .



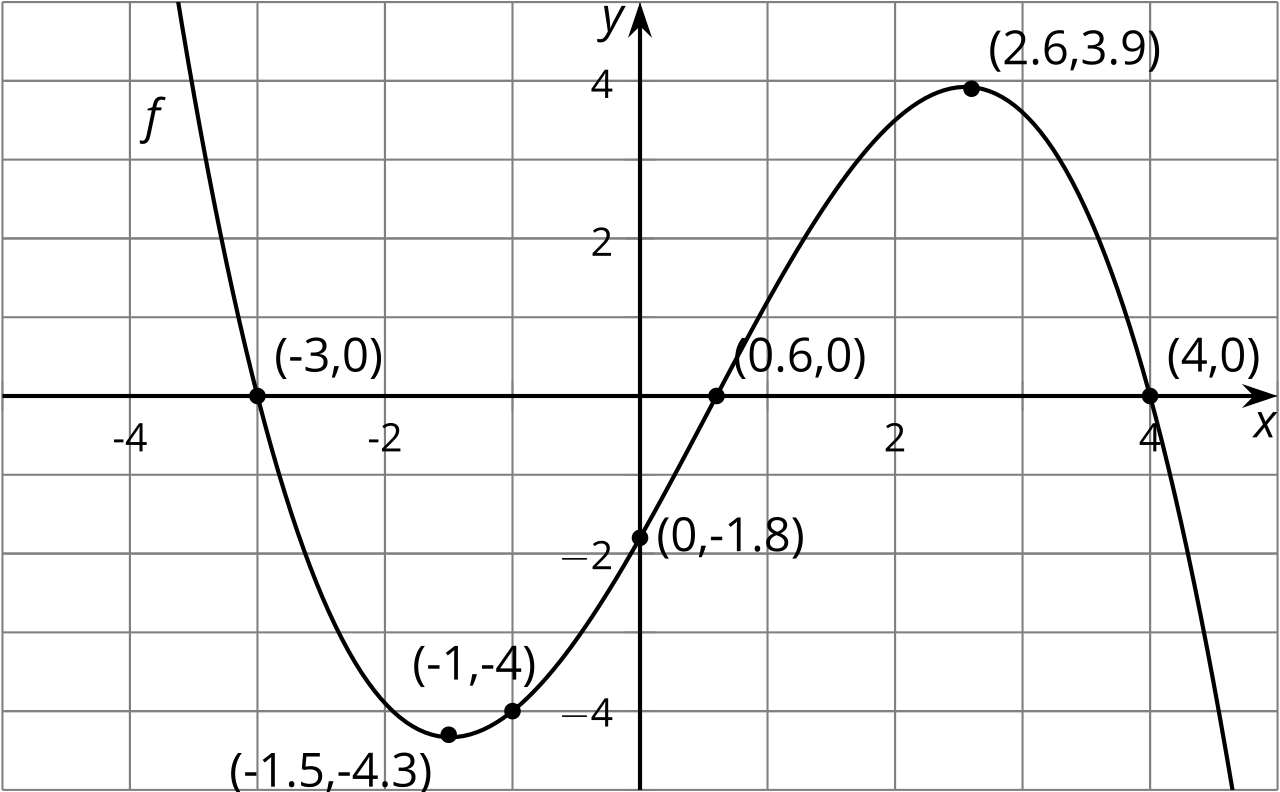
1. Use the definition of to find . Does your answer agree with your prediction?
2. What does your prediction tell you about ? Does your answer agree with the definition of ?
3. Complete the tables. The values for  will not be the same for the two tables.

|  |  |
| --- | --- |
| * -3 | * 0 |
| * -1.5 | * -4.3 |
| * -1 | * -4 |
| * 0 | * -1.8 |
| * 0.6 | * 0 |
| * 2.6 | * 3.9 |
| * 4 | * 0 |

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. Sketch the graph of on the same axes as the graph of but in a different color.
2. Describe what happened to the graph of to transform it into the graph of . Explain how the equation produces this transformation.

#### Images for Activity Synthesis





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