

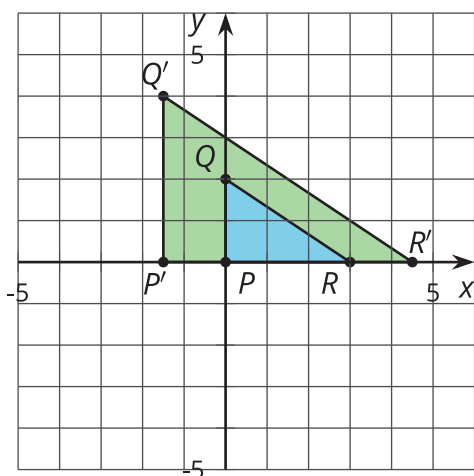
# Parameters and Graphs

Let's talk about moving graphs around the plane.

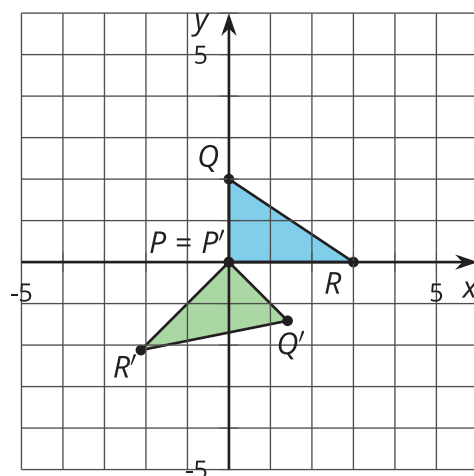
## 17.1 Which Three Go Together: Triangles

Each figure shows triangle  $PQR$ , and its image after a transformation,  $P'Q'R'$ . Which three go together? Why do they go together?

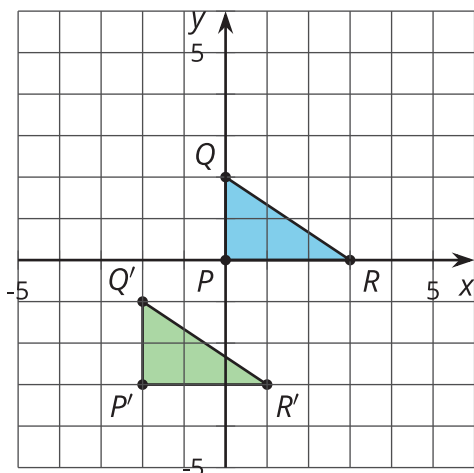
A



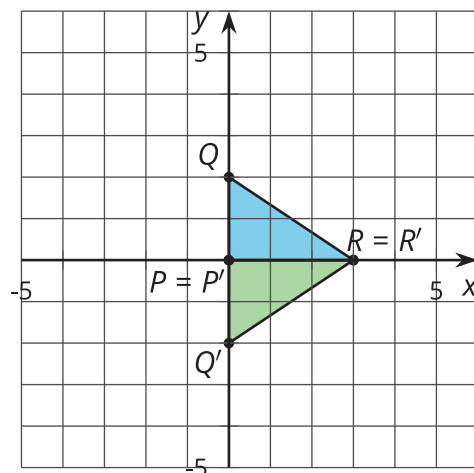
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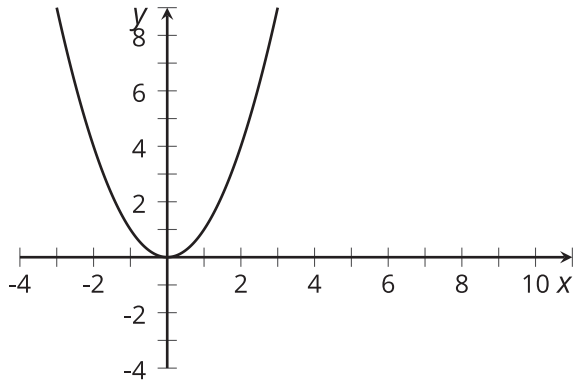
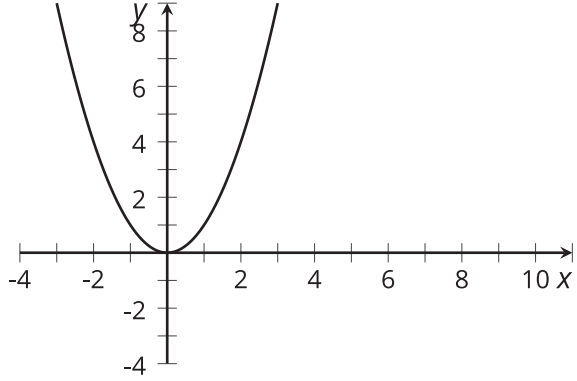
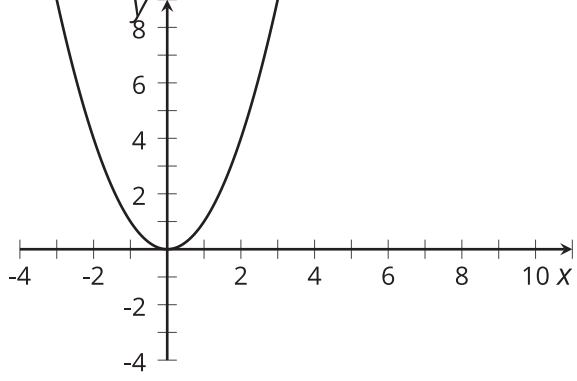


D

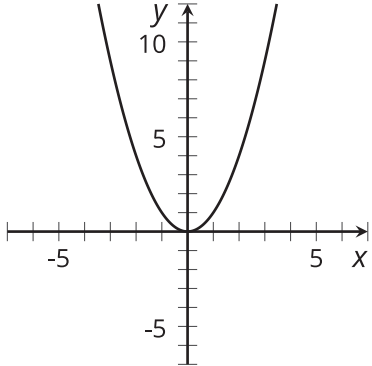
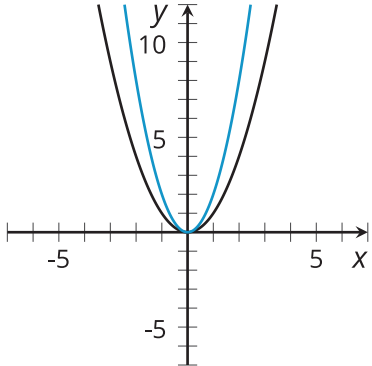
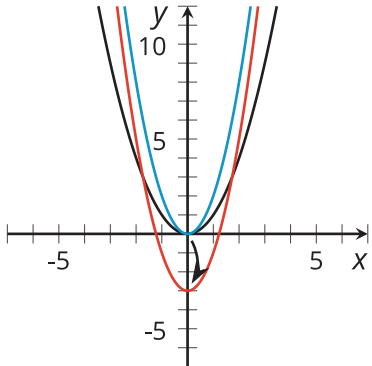


## 17.2 Describe the Change

1. Use graphing technology to graph each equation. Describe how each graph changes from the graph before and draw a sketch of the change.

| equation            | description of change | sketch of graph                                                                      |
|---------------------|-----------------------|--------------------------------------------------------------------------------------|
| $y = x^2$           | original graph        |    |
| $y = (x - 5)^2$     |                       |   |
| $y = (x - 5)^2 + 4$ |                       |  |

2. Describe the change in the given sketch and write an equation that you think would generate that change.

| equation  | description of change | sketch of graph                                                                      |
|-----------|-----------------------|--------------------------------------------------------------------------------------|
| $y = x^2$ | original graph        |    |
|           |                       |   |
|           |                       |  |

3. How would the graph of  $y = -2x^2 - 3$  compare to the graph of  $y = 2x^2 - 3$ ?

## 17.3

## Select a Function

Let's call the graph of  $y = x^2$  "the original graph."

Select the function that will affect the original graph in the way described.

- |                                                                                |                       |
|--------------------------------------------------------------------------------|-----------------------|
| 1. Shift the vertex of the graph left 1 unit.                                  | • $y = x^2 + 1$       |
| 2. Shift the vertex of the graph up 1 unit.                                    | • $y = (x + 1)^2$     |
| 3. Shift the vertex of the graph right 1 unit and up 1 unit.                   | • $y = 3x^2$          |
| 4. Make the original graph narrower.                                           | • $y = (x - 1)^2 + 1$ |
| 5. Make the original graph narrower, and shift the vertex 1 unit to the right. | • $y = 3(x - 1)^2$    |