

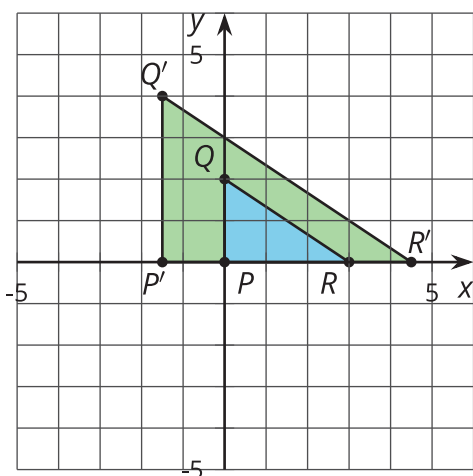
# Parameters and Graphs

Let's talk about moving graphs around the plane.

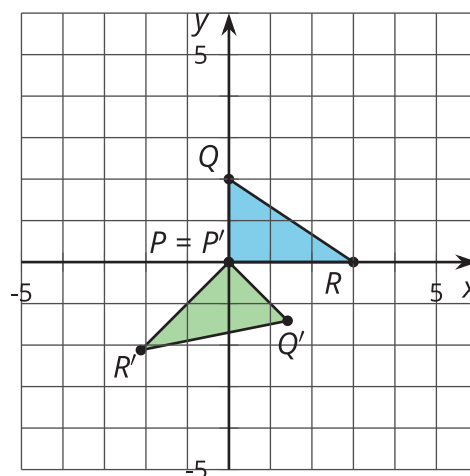
## 17.1 Which Three Go Together: Triangles

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

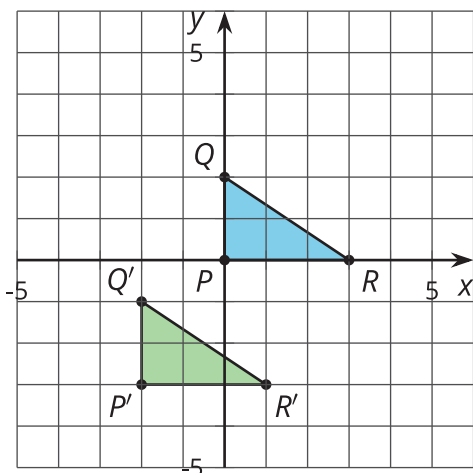
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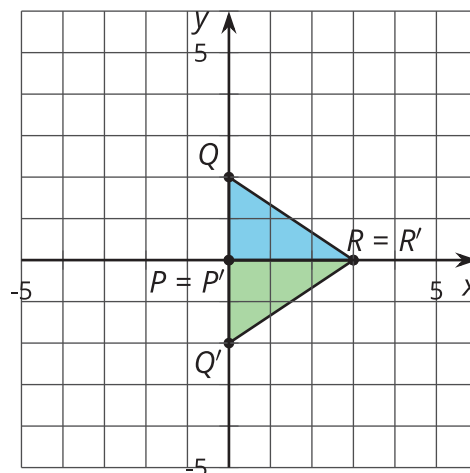
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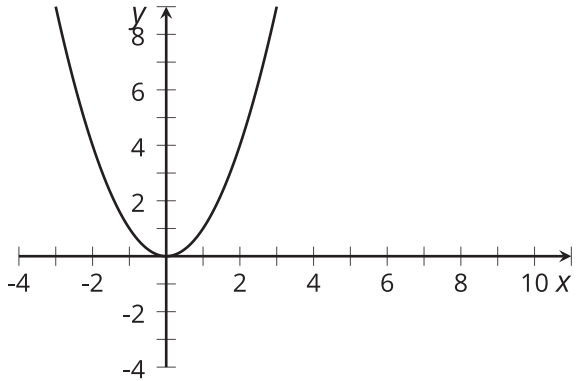
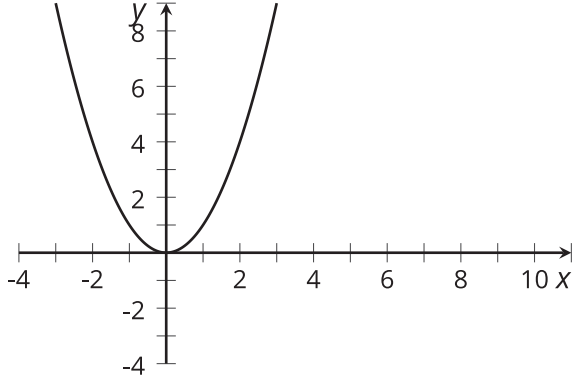
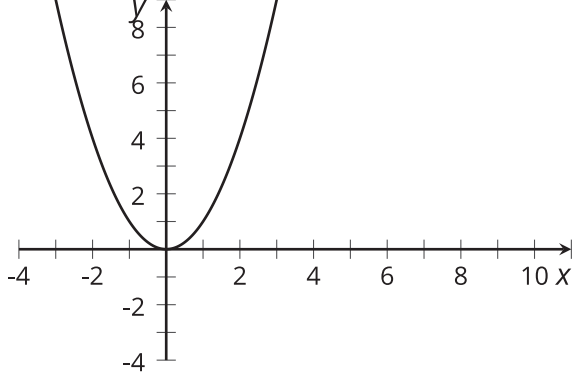


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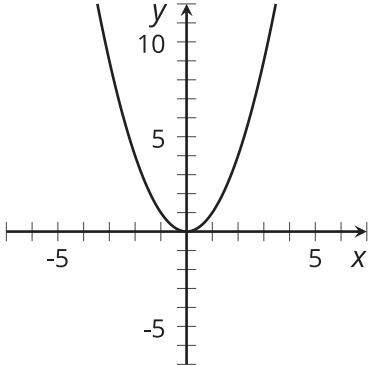
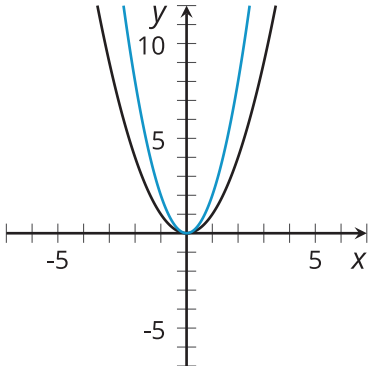
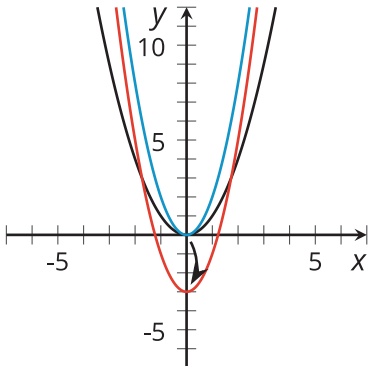


## 17.2 Describe the Change

- 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. | • $y = 3(x - 1)^2$    |

