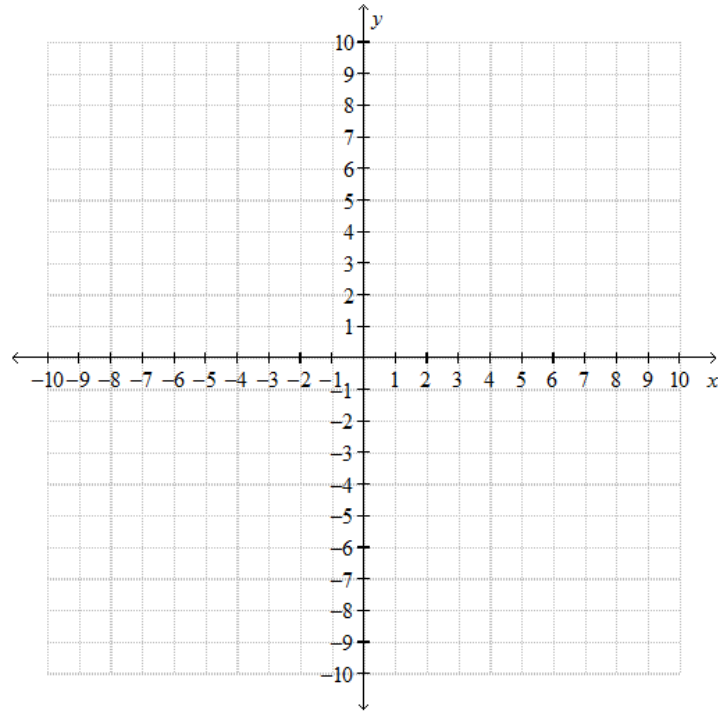


# Graphing Nonlinear Equations

Graph the following equation using a table of values:

$$y = x^2$$

| x  | y |
|----|---|
| 3  |   |
| 2  |   |
| 1  |   |
| 0  |   |
| -1 |   |
| -2 |   |
| -3 |   |



This shape is called a

\_\_\_\_\_.

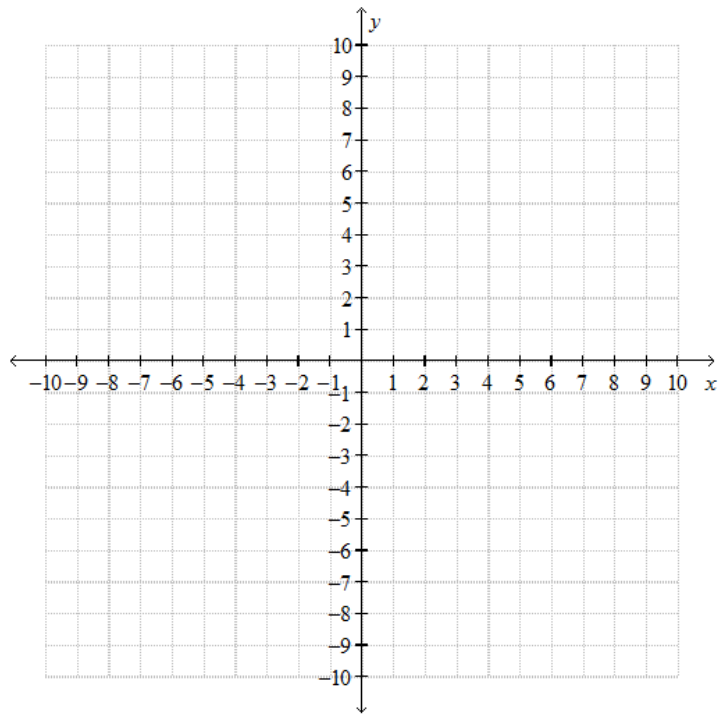
The equation that results in this type of graph is called a

\_\_\_\_\_.

Now graph the equation:

$$y = x^2 - 3$$

| x  | y |
|----|---|
| 3  |   |
| 2  |   |
| 1  |   |
| 0  |   |
| -1 |   |
| -2 |   |
| -3 |   |

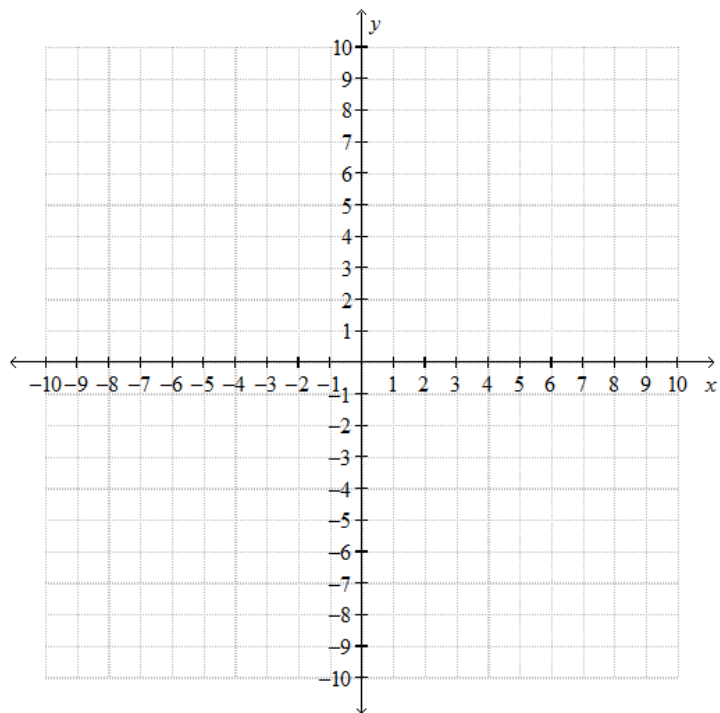


How is this graph different from the graph of  $y=x^2$ ?

Now graph the equation:

$$y = 4x^2$$

| x  | y |
|----|---|
| 3  |   |
| 2  |   |
| 1  |   |
| 0  |   |
| -1 |   |
| -2 |   |
| -3 |   |

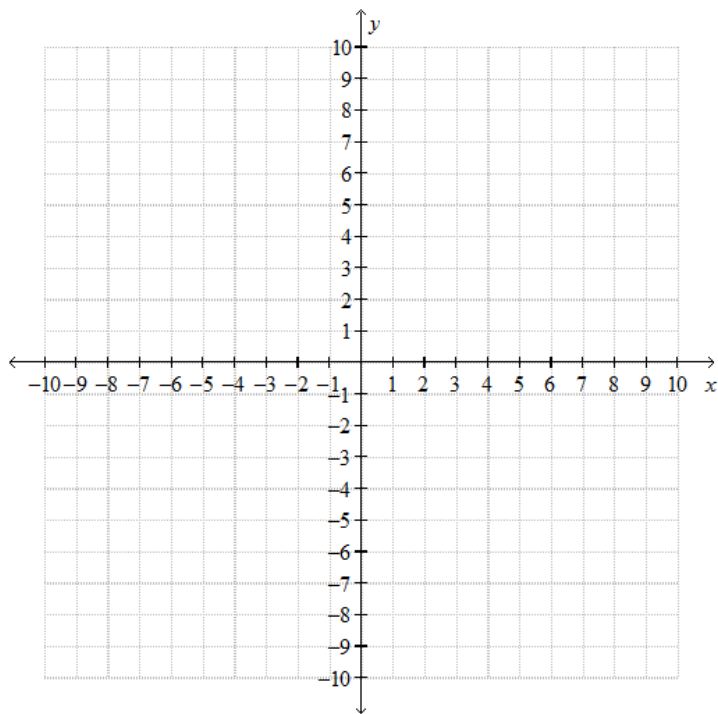


How is this graph different from the graph of  $y=x^2$ ?

Now graph the equation:

$$y = \left(\frac{1}{4}\right)x^2$$

| x  | y |
|----|---|
| 3  |   |
| 2  |   |
| 1  |   |
| 0  |   |
| -1 |   |
| -2 |   |
| -3 |   |

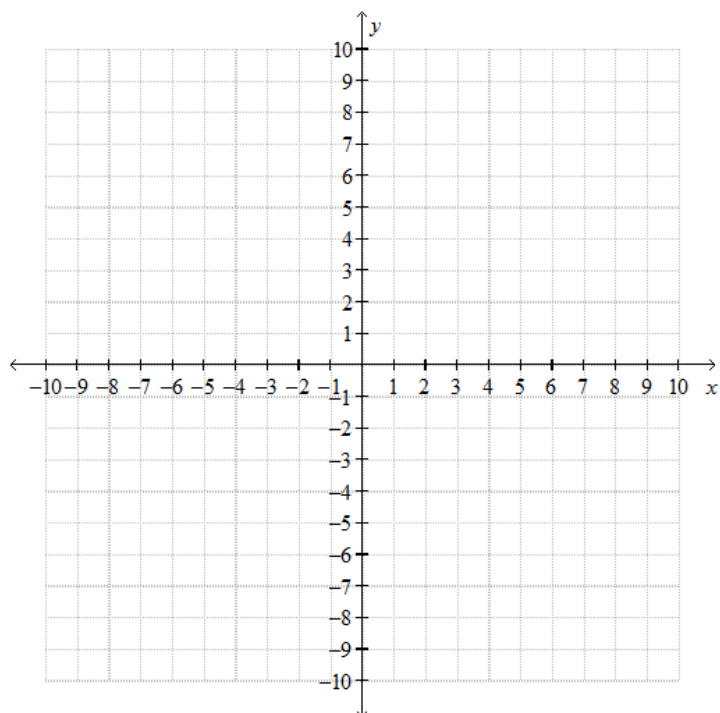


How is this graph different from the graph of  $y=x^2$ ?

Now graph the equation:

$$y = (x-1)^2$$

| x  | y |
|----|---|
| 3  |   |
| 2  |   |
| 1  |   |
| 0  |   |
| -1 |   |
| -2 |   |
| -3 |   |

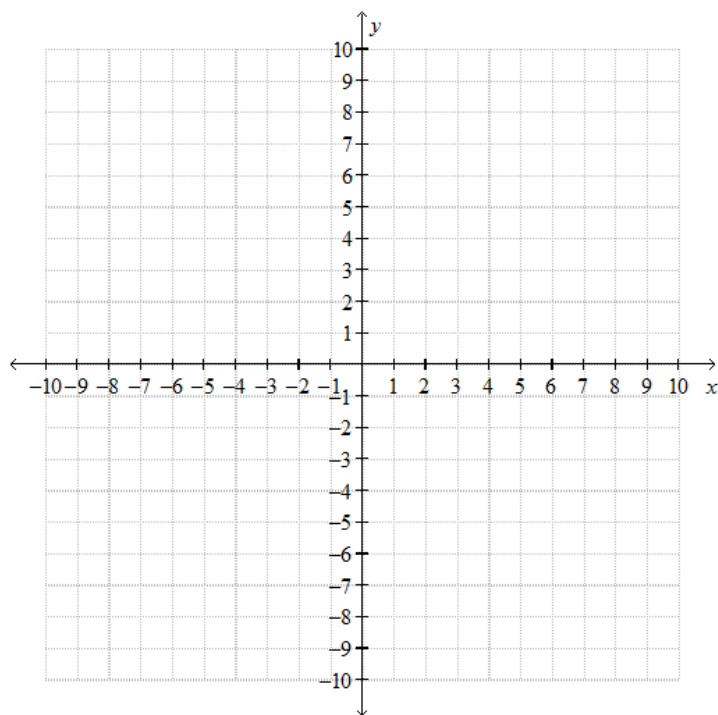


How is this graph different from the graph of  $y=x^2$ ?

Now graph the equation:

$$y = -x^2$$

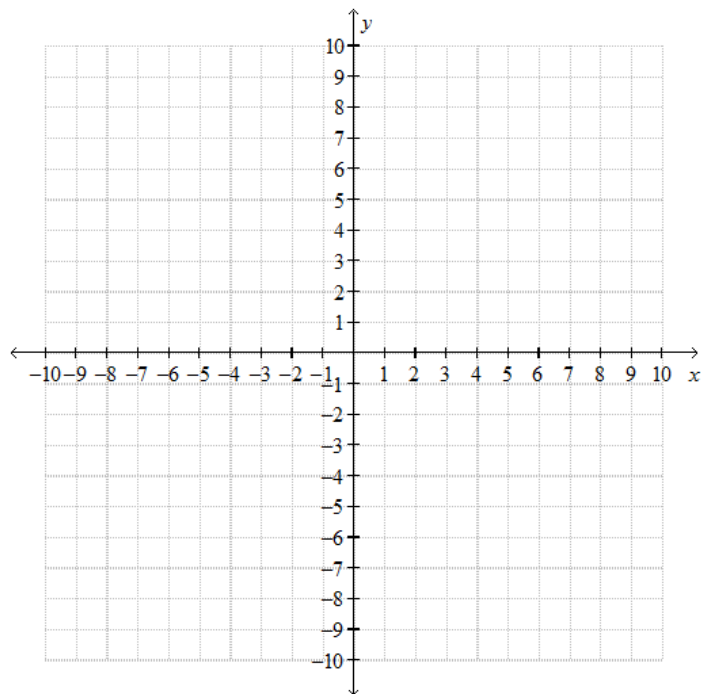
| x  | y |
|----|---|
| 3  |   |
| 2  |   |
| 1  |   |
| 0  |   |
| -1 |   |
| -2 |   |
| -3 |   |



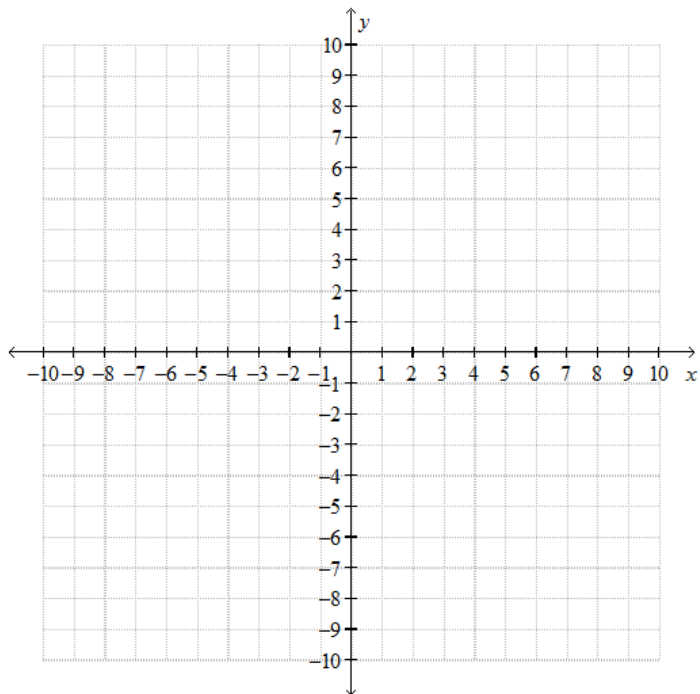
How is this graph different from the graph of  $y=x^2$ ?

Practice: Graph the following quadratic equations.

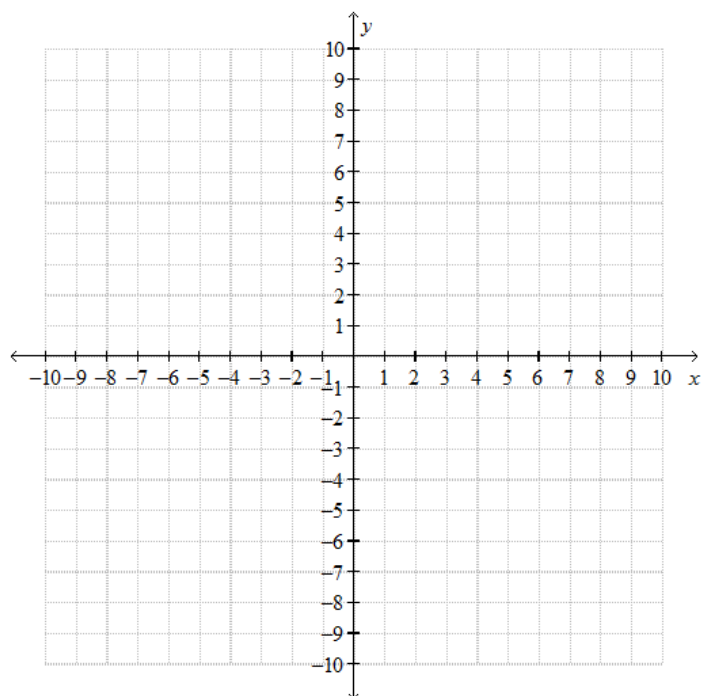
1.  $y = 3x^2$



2.  $y = x^2 - 5$



3.  $y = (\frac{1}{2})x^2$



4.  $y = (x+3)^2$

