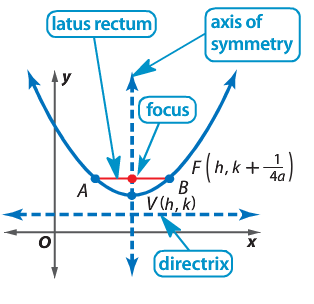
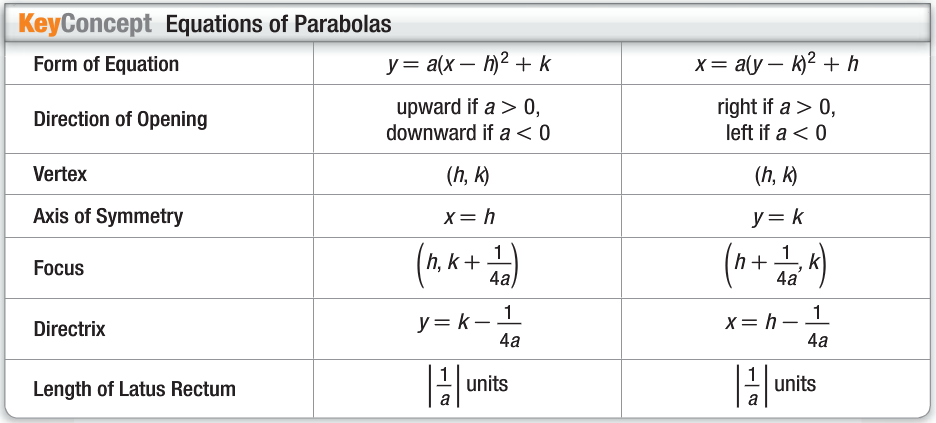
Goals:

* I can write equations of parabolas in standard form.
* I can graph parabolas.

Equations of Parabolas





**Standard form:**

**General form:**

Example 1: Analyze the Equation of a Parabola

Write in standard form. Identify the vertex, axis of symmetry, and direction of opening of the parabola.

|  |  |  |
| --- | --- | --- |
|  |  | Original Equation |
|  |  | Factor 2 from the *x*- and - terms. |
|  |  | Complete the square on the right side. |
|  |  | The 9 added when you complete the square is multiplied by 2. |
|  |  | Factor. |

\*The number that goes in the box comes . The came from the number next to the *x* in step 2. Always divide by 2 and always square the number.\*

a= \_\_\_\_\_\_\_\_\_

h= \_\_\_\_\_\_\_\_\_

k= \_\_\_\_\_\_\_\_\_

The vertex is (\_\_\_\_\_, \_\_\_\_\_)

The equation of the axis of symmetry is \_\_\_\_\_\_\_\_\_\_.

The parabola opens \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| Formula: | This Example |
| Focus: |  |
| Directrix: |  |
| Length of Latus Rectum: units |  |

Example 2: Find all pieces of the equation and graph the equation.

Use completing the square to put the equation into STANDARD FORM.

a= \_\_\_\_\_\_\_\_\_

h= \_\_\_\_\_\_\_\_\_

k= \_\_\_\_\_\_\_\_\_

The vertex is (\_\_\_\_\_, \_\_\_\_\_)

The equation of the axis of symmetry is \_\_\_\_\_\_\_\_\_\_.

The parabola opens \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| Formula: | This Example |
| Focus: |  |
| Directrix: |  |
| Length of Latus Rectum: units |  |