A **parabola** is the set of all points that are the same distance away from a line (directrix) and a point not on the line (focus).

UP parabola- The vertex is the lowest point of the parabola
DOWN parabola- The vertex is the highest point of the parabola
RIGHT parabola- The vertex is the most left point of the parabola
LEFT parabola- The vertex is the most right point of the parabola

The vertex and the focus always lie in a line called the axis of symmetry (this line is like a mirror for the parabola).

The axis of symmetry is always perpendicular to the directrix.

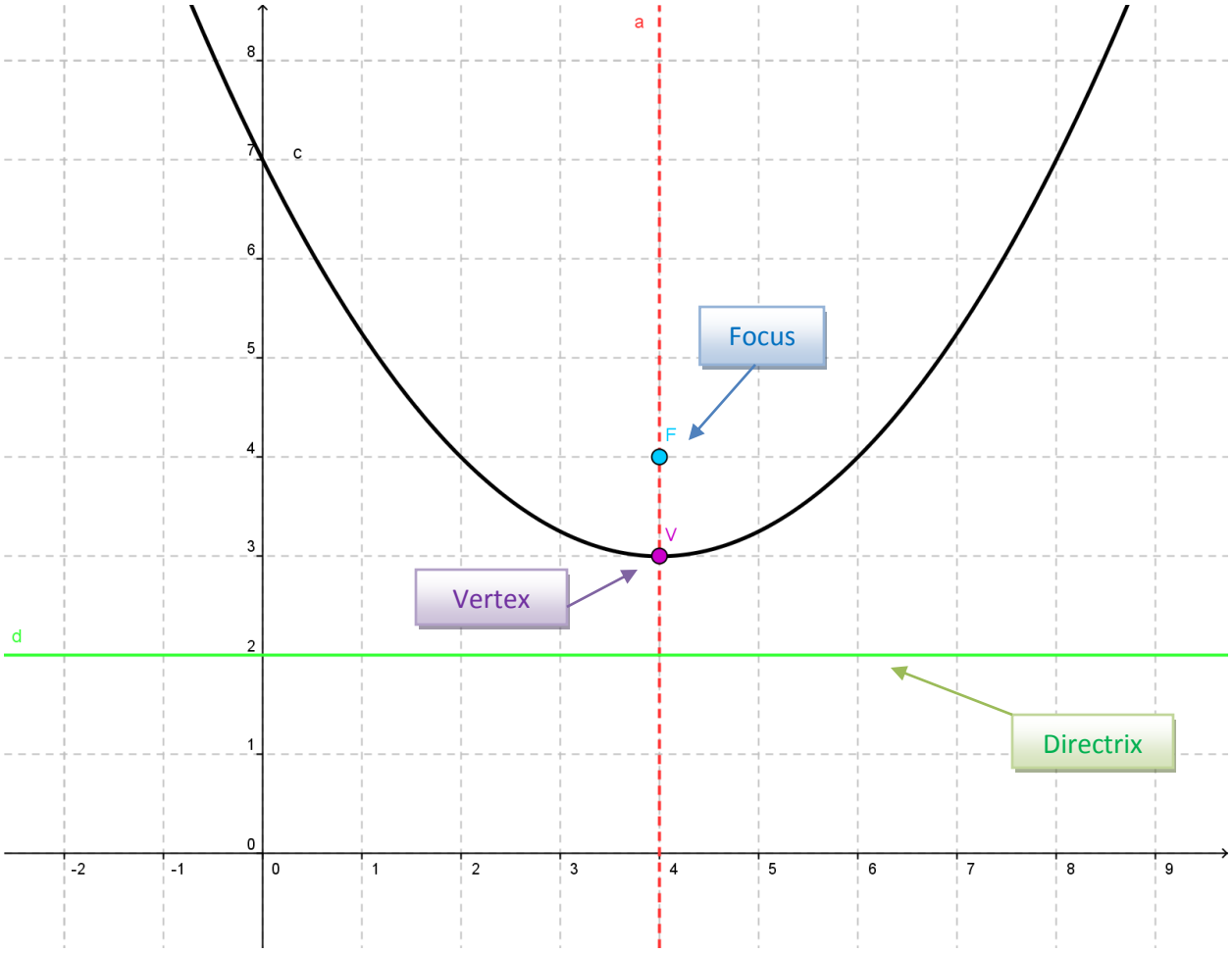
Distance from the vertex to the focus = Distance from the vertex to the directrix

The vertex is always a **point** on the parabola
The focus is always a **point** "inside" the parabola
The directrix is a **line** that never touches the parabola

The focus and the directrix are in opposite directions from the vertex.

Check out the diagrams on the following pages…

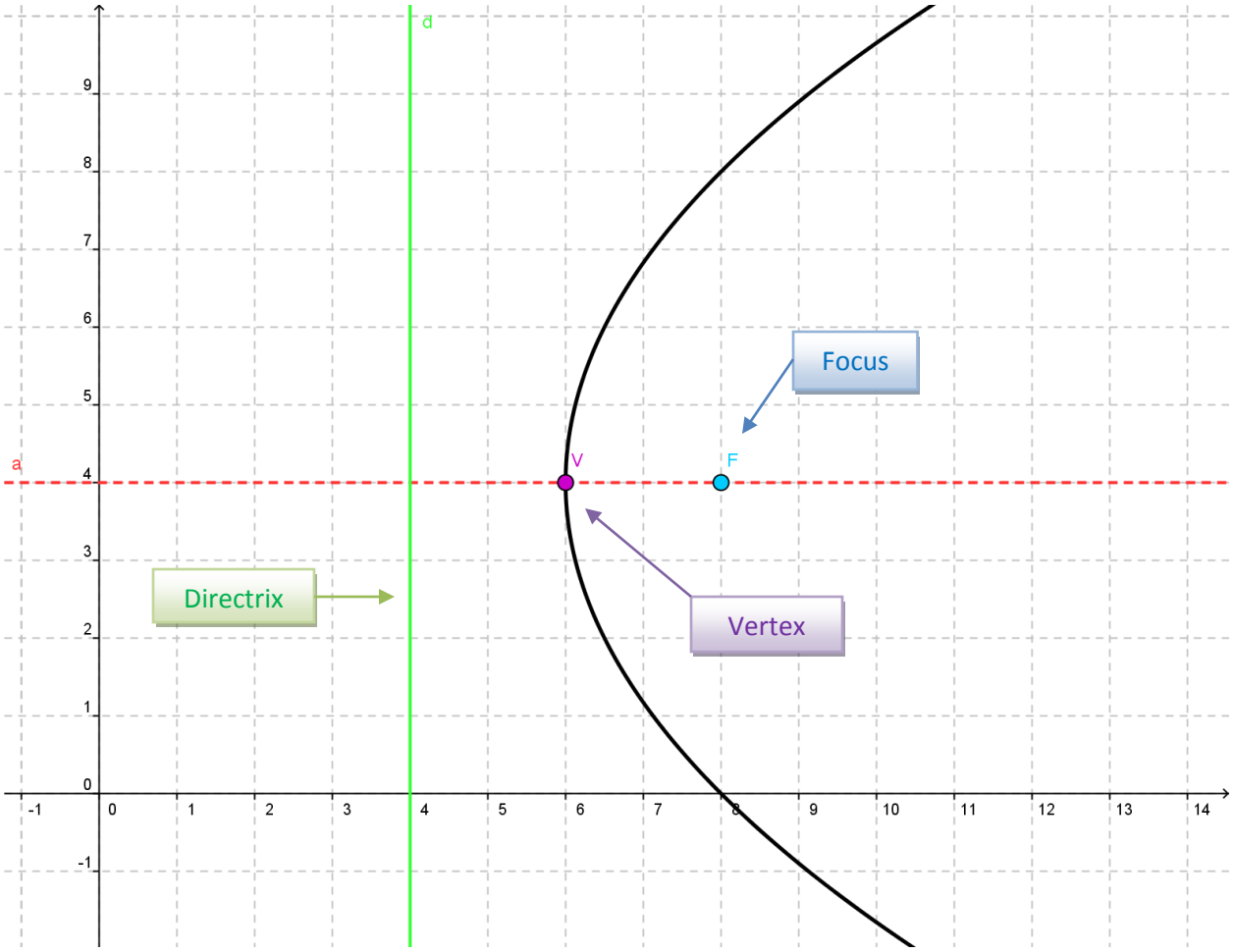
UP parabola




The distance from the vertex to the focus = 1

The distance from the vertex to the directrix = 1

RIGHT parabola




The distance from the vertex to the focus = 2

The distance from the vertex to the directrix = 2