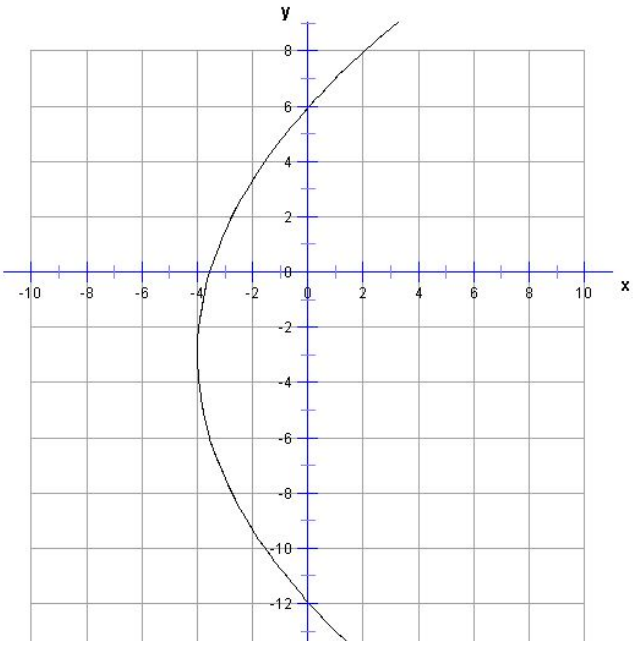
Classroom Examples for Pre-Calculus #9

Directrix and focus: 1/4a *Distance from a point on a parabola to the focus is the same as the distance from that point to the directrix!

1) Identify the conic section, find the standard form of the equation of the conic, find any vertices, centers, foci, radii, directrices, major and minor axes, axes of symmetry, and graph the equation $15y = 5x^2 - 10x + 65$ including the locations of any vertices, centers, foci, directrices, major and minor axes, or axes of symmetry in your graph.
2) Identify the conic section, find the standard form of the equation of the conic, find any vertices, centers, foci, radii, directrices, major and minor axes, axes of symmetry, and graph the equation $3x^2 - 24y + 27 = -30x - 3y^2 - 21$ including the locations of any vertices, centers, foci, directrices, major and minor axes, or axes of symmetry in your graph.
3) Identify the conic section, find the standard form of the equation of the conic, find any vertices, centers, foci, radii, directrices, major and minor axes, axes of symmetry, and graph the equation $25x^2 + 128y + 41 = 150x - 16y^2 - 40$ including the locations of any vertices, centers, foci, directrices, major and minor axes, or axes of symmetry in your graph.
4) Identify the conic section, find the standard form of the equation of the conic, find any vertices, centers, foci, radii, directrices, major and minor axes, axes of symmetry, and graph the equation $-3x = 6y^2 - 24y + 15$ including the locations of any vertices, centers, foci, directrices, major and minor axes, or axes of symmetry in your graph.
5) If the directrix of a conic section is $y = 3$ and a focus is at the point (6, –5), what type of conic section is it and find the equation in standard form.
6) If the minor axis is 10, the center is at the point (3,–2), and a vertex is at the point (9,–2), what type of conic is it and find the equation of the conic in standard form.
7) If the vertex of a parabola is the point (–4, 5) and focus is at the point (–7, 5) find the equation of the parabola in standard form.
8) Identify the conic section and find its equation, in standard form, based on the following graph if point F is the focus at $(1, -3)$ and point P at (1, 7) is a point on the curve.



9) Identify the conic section and find its equation, in standard form, based on the following graph if point F is a focus at $(2,-3-2\sqrt{5})$, point V at (8,–3) is a vertex, and point C is the center at (2, –3).