Chaparral High School
Algebra II Review for Exam on Chapter 10
Conic Sections

This is a 50 minute exam to be completed without the aid of calculators. Please *show all appropriate work* and place answers in *lowest terms*. Please work independently. This exam will be scaled to 100 points. Your exam will consist of 7 problems similar to the ones below. Good Luck!

1) (5 points) Graph the conic section.

$$y = \frac{1}{2}(x-3)^2 + 5$$

2) (5 points) Graph the conic section.

$$(x-5)^2 + (y-3)^2 = 2$$

3) (5 points) Graph the conic section.

$$\frac{(x+1)^2}{4} + \frac{(y-3)^2}{9} = 1$$

4) (5 points) Graph the conic section.

$$\frac{(x-4)^2}{49} - \frac{(y-2)^2}{10} = 1$$

5) (5 points) Write the equation of the conic section in standard form and graph the equation.

$$x^2 + 4x + 4y - 16 = 0$$

6) (5 points) Write the equation of the conic section in standard form and graph the equation.

$$15x^2 + 15y^2 - 150x - 30y + 330 = 0$$

7) (5 points) Write the equation of the conic section in standard form and graph the equation.

$$4x^2 + y^2 - 24x + 6y + 9 = 0$$

8) (5 points) Write the equation of the conic section in standard form and graph the equation.

$$-25x^2 + y^2 + 50x + 20y + 50 = 0$$

9) (7 points) Write the equation of the conic section in standard form and graph the equation. If the conic section is a parabola, find the vertex and the directrix. If the conic section is an ellipse, find the foci. If the conic section is a hyperbola, list the foci and the equations of the asymptotes.

$$16x^2 + y^2 + 160x - 22y + 505 = 0$$

10) (10 points) Write the equation of the conic section in standard form and graph the equation. If the conic section is a parabola, find the vertex and the directrix. If the conic section is an ellipse, find the foci. If the conic section is a hyperbola, list the foci and the equations of the asymptotes.

$$4x^2 - 9y^2 + 32x - 144y - 548 = 0$$

11) (6 points) Solve the system of nonlinear equations given below.

$$\begin{aligned} 4x^2 + y^2 - 4y - 32 &= 0 \\ x^2 - y - 7 &= 0 \end{aligned}$$