Identify each equation as that of a circle, ellipse, hyperbola, or parabola. Express the equation in standard form and sketch its graph. Show your work neatly organized.

1.
$$x^2 - 4y^2 - 2x - 24y - 39 = 0$$

2. $x^2 + 9y^2 + 2x - 18y + 1 = 0$





$$3. \quad x^2 + y^2 - 6x - 16y + 57 = 0$$

4. $x^2 + 2x + 4y - 11 = 0$





Precalculus Worksheet #1 Unit 8 page 2

Identify each equation as that of a circle, ellipse, hyperbola, or parabola. Express the equation in standard form and sketch its graph. Show your work neatly organized.

5.
$$9x^2 + 25y^2 + 36x - 150y + 36 = 0$$

6. $4x^2 + 4y^2 - 4x + 20y + 17 = 0$





7.
$$16x^2 - 9y^2 + 64x + 18y + 199 = 0$$







Precalculus Worksheet #1 Unit 8 page 3

Identify each equation as that of a circle, ellipse, hyperbola, or parabola. Express the equation in standard form and sketch its graph. Show your work neatly organized.

9.
$$x^2 - y^2 - 4x - 2y - 6 = 0$$

10. $x^2 + y^2 - 4x + 2y - 4 = 0$





12.
$$9x^2 - y^2 - 18x - 6y - 9 = 0$$



