Review Sheet for Exam #2

1) Complete the square and put the quadratic function into vertex form.   Then identify the vertex.

$$y = 3x^2 + 48x - 63$$

2) Find the quotient and express in standard form of a complex number.

$$\frac{6 - 9i}{-3 + 8i}$$

3) Rationalize the denominator and express in simplest form:

$$\frac{20}{\sqrt{24}}$$

4) Find the vertex, the roots, and the y intercept of $y = x^2 - 4x - 5$. Then graph the parabola, labeling all the points.

5) Add the following rational expressions and express your answer in simplest form.

$$\frac{5}{x} - \frac{7}{x-1}$$

6) Put $\sqrt[3]{7^{12}}$ in exponential form and evaluate.

7) Solve the equation and **check your answer**.

$$2\sqrt{x + 3} - x = 0$$

8) Simplify and express your answer without negative exponents.

$$\left(\frac{7a^{-3}}{3a^7}\right)^4$$

9) Perform the indicated operation and express in simplest form.

$$2x\sqrt{28x^9} + 9x^3\sqrt{7x^5}$$

10) Solve the nonlinear system of equations. Express your answer(s) as ordered pairs.

$$x^2 + y^2 = 17$$
$$4x^2 + y^2 = 20$$

11) Simplify the complex fraction.

$$\frac{\frac{7x}{y} - x}{x - \frac{6x}{y}}$$

12) Put the equation of the circle in standard form and identify the center and radius of the circle. Then graph the circle, labeling 4 points.

$$x^2 + 52 - 10x + 12y + y^2 = 0$$

13) Solve using the quadratic equation. Leave answer in simplest radical form.

$$2x^2 - 14x + 23 = 0$$