MATH-1320 Name _____
Exam 1
Fall 2016 Rocket Number _____

INSTRUCTIONS: You must show enough work to justify your answer on **ALL** problems. Correct answers with no work (or inconsistent work) shown **will not** receive full credit. **All answers are to be exact; no decimal approximations.** You are **NOT** allowed to use any electronic device for this exam.

1. Simplify the following. Write your answer in $a + b\,i$ form. **Put a box around your answer.**

   a. $\dfrac{18 - \sqrt{-75}}{15}$ (5 pts.)

   b. $(8 - 3i)^2$ (5 pts.)

   c. $\dfrac{2 - 5i}{3 - 4i}$ (8 pts.)

2. Solve the following equations by the indicated method. **Put a box around your answer(s).**

   a. $7y^2 - 49 = 0$ using square roots (5 pts.)

b. $3(x + 7)^2 + 20 = -76$ using square roots (5 pts.)

c. $5t^2 - 6 = 8t$ using the Quadratic Formula (10 pts.)

3. Solve the following equations. **Put a box around your answer(s).**

a. $w^4 = 27w$ (12 pts.)

b. $6|3t - 8| + 11 = 35$ (6 pts.)

c. $18y^3 - 27y^2 + 8y - 12 = 0$ (8 pts.)

d. $\frac{3x}{x-2} - \frac{7}{x-6} = \frac{x^2 - 14x}{x^2 - 8x + 12}$ (10 pts.)

e. $\sqrt{3x + 15} + \sqrt{x + 3} = 4$ (12 pts.)

4. Solve the following inequalities. Write the solution set in interval notation.

a. $4 < \frac{11 - 6x}{3} \leq 7$ (7 pts.)

Answer _____

b. $4|y + 5| - 9 > 19$ (7 pts.)

Answer _____