MATH-1320   Name _____

Exam 1

Fall 2021   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 can either print this exam and work the problems in the provided spaces or you can work each problem on your own paper. **If you do not print the exam, do not waste time by writing the problems and put a box around your answer(s) for each problem.** You are **NOT** allowed to use any books nor supplementary material. You are only allowed to use an electronic device to open and print this exam, to take pictures of the papers with your work on it, and to submit these pictures through Blackboard. **NO CALCULATORS. IF A CALCULATOR IS USED FOR A PROBLEM, YOU WILL RECEIVE A ZERO FOR THE PROBLEM. IF I SUSPECT THAT THE WORK ON A PROBLEM IS NOT YOURS, YOU WILL BE ASKED TO EXPLAIN THE WORK IN ORDER TO RECEIVE CREDIT FOR THE PROBLEM.** Simplify all radicals.

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

   a. $\dfrac{10 - \sqrt{-48}}{14}$ (5 pts.)

   b. $(5 - 4i)^2$ (5 pts.)

   c. $\dfrac{3 + 5i}{2 + 7i}$ (8 pts.)

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

    a. $8y^2 - 40 = 0$ using square roots (6 pts.)

    b. $4(5x + 9)^2 + 35 = -61$ using square roots (6 pts.)

    c. $9w^2 - 8w = 4$ using the Quadratic Formula (10 pts.)

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

    a. $4t^5 = 32t^2$ (12 pts.)

b. $8|6x - 11| + 25 = 65$ (6 pts.)

c. $36y^3 - 27y^2 + 100y - 75 = 0$ (8 pts.)

d. $\dfrac{5x}{2x - 3} - \dfrac{8}{x + 4} = \dfrac{2x^2 + 21x}{2x^2 + 5x - 12}$ (10 pts.)

e. $\sqrt{2y + 55} + 4 = y$ (10 pts.)

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

a. $3 \le \dfrac{17 - 6x}{4} < 8$ (7 pts.)

Answer _____

b. $7|y - 9| - 15 > 20$ (7 pts.)

Answer _____