

Math 1120F - Exam 2

Name: _____

Friday, November 7, 2014
Time: 30 minutes
Instructor: Brittany Cuchta

Instructions:

- Do not open the exam until I say you may.
- All cell phones and other electronic noisemaking devices must be turned off or completely silenced (i.e., not on vibrate) for the duration of the exam.
- **No calculators** are allowed on the exam.
- The exam *must* be taken in pencil. Using a pen on the exam will result in the loss of points.
- Failure to follow directions specific to a problem will result in the loss of points.
- Circle or box your final answer where appropriate. Put your final answer in the provided space when available. Failure to do so will result in points being deducted.
- Show **all** work. Full credit will only be given if work is shown which **fully and clearly** justifies your answer. I reserve the right to not grade a problem which I cannot read.
- Answers must be exact (like $\sqrt{2}$), not approximate (like 1.414), unless a problem specifically indicates otherwise.
- All final answers must be simplified unless otherwise specified. **Rationalization is not required unless otherwise specified.**
- If you run out of room, use the back of the page and indicate this on the question.
- As always, you are expected to exhibit academic integrity during the exam.

Page:	1	2	3	Total
Points:	20	15	15	50
Score:				

1. (6 points) Circle true or false for the following questions. Partial credit will not be given.

(a) True False : If $|u| \leq a$, $a > 0$ then $u \geq a$ or $u \leq -a$.

(b) True False : The *complex* conjugate of 3 is -3 .

(c) True False : Some equations have no solution.

2. (6 points) State the type of solution(s) expected given the following:

(a) $b^2 - 4ac = 0$ _____

(b) $b^2 - 4ac < 0$ _____

(c) $b^2 - 4ac > 0$ _____

3. (5 points) Set up, but do not solve, the following partial fraction decomposition.

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

4. (3 points) Write the following in $a + bi$ form:

$$\frac{3-i}{3+i}$$

5. Solve the following inequalities. Express your answer in interval notation.

(a) (5 points) $|5 - 2x| \leq 9$

Solution: _____

(b) (5 points) $\frac{1}{2} + \left| \frac{2x - 1}{3} \right| \leq 1$

Solution: _____

6. (5 points) Jack and Sally have been asked to mow the lawn. If Jack can finish the job in 4 hours and Sally can in 5 hours, how long will it take them to finish the job together?

7. Find **all** solutions to the following equations using any method. If there is no solution, state so.

(a) (5 points) $\sqrt{3x+1} - \sqrt{x} = 3$

Solution: _____

(b) (5 points) $u^4 + 2u^2 - 8 = 0$

Solution: _____

(c) (5 points) $\frac{6x}{x^2-9} = \frac{18}{x^2-9} - \frac{2}{x+3}$

Solution: _____