MATH 107 QUIZ 1 Summer, 2017 Instructor: Dr. J. Wulu

NAME: _____

I have completed this assignment myself, working independently and not consulting anyone except the instructor.

INSTRUCTIONS

- The quiz is worth 100 points. There are 12 problems. This quiz is *a **take-home activity***. This means that you may refer to your textbook, notes, and online classroom materials, but ***you must work independently and may not consult anyone*** (and confirm this with your submission). You may take as much time as you wish, provided you turn in your completed quiz 1 no later than **Monday, June 5**.
- **Show work/explanation where indicated. Answers without any work may earn little, if any, credit.** You may type or write your work in your copy of the quiz, or if you prefer, create a document containing your work. Scanned work is acceptable also. **In your document, be sure to include your name and the assertion of independence of work.**
- General quiz tips and instructions for submitting work are posted in the Quizzes module.
- If you have any questions, please contact me by e-mail.

1. (10 pts) Consider the interval $(-\infty, 0)$. For each numerical value below, is it in the interval or not? (Just answer Yes or No)

$\frac{0}{5}$ _____ (Yes or No) -4^2 _____ (Yes or No) $|-0.5|$ _____ (Yes or No) -1.2×10^6 _____ (Yes or No) 5^{-3} _____ (Yes or No)

2. (4 pts) Write the interval notation corresponding to the set notation $\{x \mid 0 < x \leq 3\}$.

3. (7 pts) Perform the indicated operations and simplify: $(2^{-1} - 4^{-1})^{-2}$. Show work.

4. (8 pts) Perform the indicated operations and simplify: $\dfrac{10 \times 2^{-3}}{(-2)^2 \times 10^{-2}}$ Show work.

Note: $\times$ is a multiplication symbol here, not a variable.

5. (8 pts) Solve the inequality $|3x + 1| - 3 \leq 11$. Show work. Write interval notation for the solution set.

6. (8 pts) Solve the inequality $5 + |3 + 2x| \geq 7$. Show work. Write interval notation for the solution set.

7. (9 pts) Simplify: $\sqrt{125} - \sqrt{20} + \sqrt{45x^2}$ Show work. Give the exact answer (including a radical).

8. (10 pts) Factor. (Work ***not*** required to be shown).

(a) $16x^2 - 36$

(b) $5x^2 - 18x - 8$

9. (12 pts) Perform the indicated operations and simplify to get a polynomial:
$(3x - 5)(4x + 8) - (x + 4)^2$ Show work.

10. (8 pts) Solve the equation $2x(x + 5) - 3x = -6$. **Show work**.

11. (8 pts) Solve the equation $8 - 4(3 - x) = 2(x - 4)$. **Show work**.

12. (8 pts) Simplify: $\frac{2}{x^2 - 16} + \frac{1}{x + 4}$. Show work.