

MATH 107 QUIZ 1

Oct 2020

Instructor: Dr. Fitzpatrick

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 *open book* and *open notes*. 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 quiz no later than **Sunday, September 23**.
- 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 $[0, \infty)$. For each numerical value below, is it in the interval or not?
(Just answer Yes or No)

$\frac{1}{25}$ _____	-3^3 _____	$ -8.5 $ _____	-4.2×10^5 _____	10^{-3} _____
(Yes or No)	(Yes or No)	(Yes or No)	(Yes or No)	(Yes or No)

2. (4 pts) Write the interval notation corresponding to the set notation $\{x \mid x \geq 4\}$.

3. (7 pts) Perform the indicated operations and simplify: $(10^{-1} + 5^{-1})^{-1}$. Show work.

4. (8 pts) Perform the indicated operations and simplify: $\frac{(250 \times 2^3)(20 \times 10^{-9})}{(5)^2 \times 10^2}$ Show work.

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

5. (8 pts) Solve the absolute value inequality $|2x - 6| \leq 14$. Show work. Write interval notation for the solution set.

6. (8 pts) Solve the absolute value inequality $|8 + 5x| \geq 13$. Show work. Write interval notation for the solution set.

7. (9 pts) Simplify: $\sqrt{25} + \sqrt{6} - \sqrt{48x^2}$ Show work. Give the exact answer (including a radical).

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

(a) $81x^2 - 25$

(b) $x^2 - 24x + 144$

9. (12 pts) Perform the indicated operations and simplify to get a polynomial:

$(4x + 5)(3x - 8) - (2x - 7)^2$ Show work.

10. (8 pts) Solve the equation $x(6x + 11) = 10$. **Show work.**

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

12. (8 pts) Simplify: $\frac{15}{x^2 - 25} + \frac{1}{x + 5}$. Show work.