Name: _____

Signature: _____

OSU name.#: _____

Lecturer: _____

Recitation Instructor: _____

Recitation Time: _____

MATH 1075 Midterm Exam 1

Instructions:

- Show ALL work to receive full credit. Answers with insufficient supporting work will receive little or no credit.

- Write clearly and legibly. Illegible answers and ambiguous markings will not receive credit.

- Completely simplify all answers.

- Please CIRCLE your answers.

Page:	2	3	4	5	6	7	Total
Points:	16	11	16	18	18	21	100
Score:							

1. (16 points) Algebraically solve the following. Express your answers in **interval notation**. If there is no solution, write ∅. (8 points each)
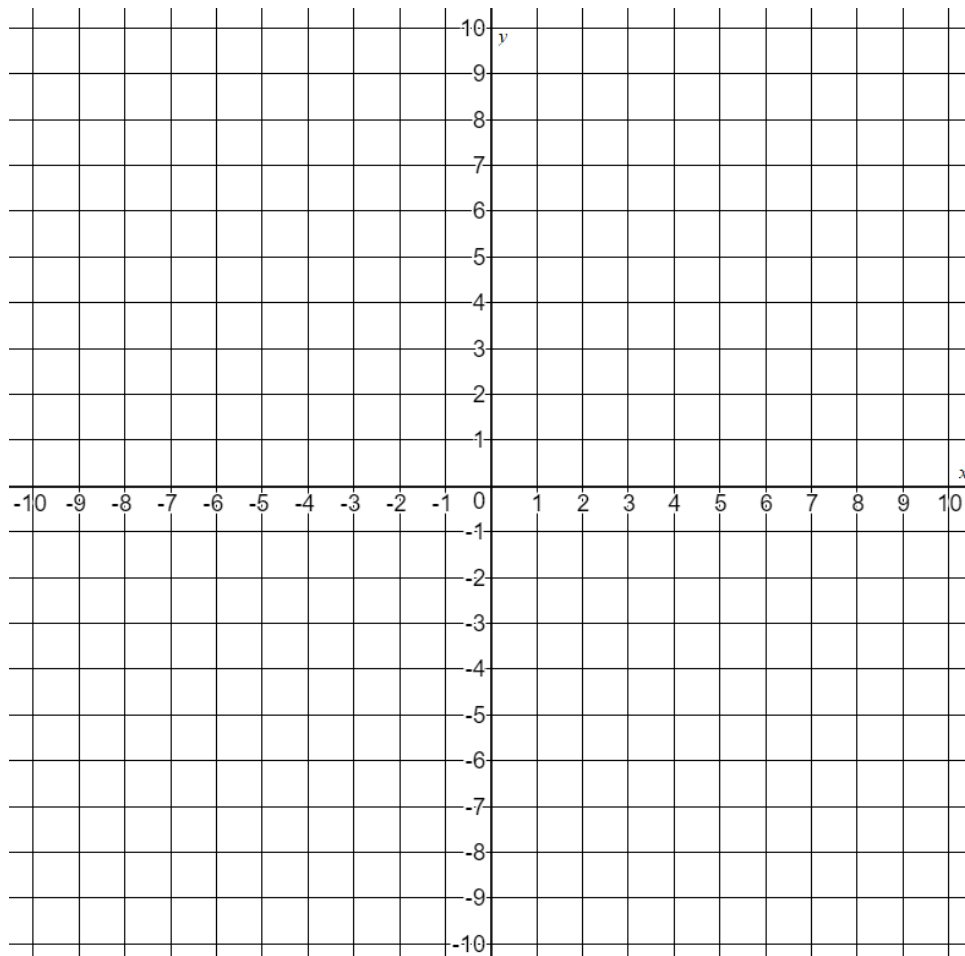
(a) $48 > 6(5 - 11p)$

(b) $13u + 4 \geq -6$ and $14u - 7 < 35$

2. (5 points) Graph the solution to the following system of inequalities.

$$-x < y - 8$$
$$x \geq 4y - 12$$

3. (6 points) Solve for p algebraically.

$$|8p + 4| - 20 = -3$$

4. (16 points) Solve each absolute value inequality algebraically.
   Express your answers in **interval notation**. (8 points each)

(a) $40 \geq |5w - 5|$

(b) $8|t + 2| + 9 > -31$

5. (18 points) Completely factor each of the following expressions. (6 points each)

(a) $28k^9m^5 - 26p^8k^4m^7$

(b) $5g^3 - 80g$

(c) Recall: the difference of cubes formula is $A^3 - B^3 = (A - B)(A^2 + AB + B^2)$.
Use this formula to completely factor the binomial:
$$8a^6 - \frac{27}{64}$$

6. (18 points) Completely factor each of the following polynomials. (6 points each)

(a) $7b^4 - 7b^3 - 35b + 35$

(b) $5x^2 - 45x - 110$

(c) $10V^2 - 11V - 6$

7. (21 points) Use the Zero Product Rule to solve the following equations. (7 points each)

(a) $12w^2 = 10w$

(b) $2x^2 + 8x + 1 = (x+3)^2$

(c) $4n^2 - 20n = -25$