1. Enumerate the elements of the following sets: (20 points, 2 parts- 10 points each)
    a. {x: x is an odd positive integer less than 13}
    b. {y: y is a positive integer that is a multiple of 4 and greater than 10 but less than 25}

2. What is the cardinality of each of the following sets: (20 points, 2 parts- 10 points each)
    a. { 5, 1, 18, 23, 14}
    b. The set of all odd integers

3. Given the following two sets, A = {1, 2, 3} and B = {a, b, c}, what are the following Cartesian product sets: (20 points, 2 parts- 10 points each)
    a. $A \times B$
    b. $B \times A$

4. Indicate whether each of the following define partitions on the set of integers. Explain your answer. (20 points, 4 parts - 5 points each)
    a. The sets of odd and even integers
    b. The sets of positive and negative integers
    c. The set of integers greater than 100 and the set of integers less than 200
    d. The set of all integers

5. Use Venn diagrams to determine whether each of the following is true or false: (20 points, 2 parts - 10 points each)

    a. $(A \cup B) \cap C = A \cup (B \cap C)$
    b. $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

Grading Rubric:

Question	Meets	Does not Meet
Question 1	**20 points** Innovative and correct method of solution.	**0 points** Solution not described, or not correct.

	Calculations and supporting evidence are complete and correct for the problem. Solution is neat, well-organized and well-written.	Calculations and supporting evidence are incorrect or not present. Solution is unorganized and poorly written.
Question 2	**20 points** Innovative and correct method of solution. Calculations and supporting evidence are complete and correct for the problem. Solution is neat, well-organized and well-written.	**0 points** Solution not described, or not correct. Calculations and supporting evidence are incorrect or not present. Solution is unorganized and poorly written.
Question 3	**20 points** Innovative and correct method of solution. Calculations and supporting evidence are complete and correct for the problem. Solution is neat, well-organized and well-written.	**0 points** Solution not described, or not correct. Calculations and supporting evidence are incorrect or not present. Solution is unorganized and poorly written.
Question 4	**20 points** Innovative and correct method of solution. Calculations and supporting evidence are complete and correct for the problem. Solution is neat, well-organized and well-written.	**0 points** Solution not described, or not correct. Calculations and supporting evidence are incorrect or not present. Solution is unorganized and poorly written.
Question 5	**20 points** Innovative and correct method of solution. Calculations and supporting evidence are complete and correct for the problem. Solution is neat, well-organized and well-written.	**0 points** Solution not described, or not correct. Calculations and supporting evidence are incorrect or not present. Solution is unorganized and poorly written.