Reading Questions 5

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page 48 Example 12

1. The complement of a set is a set.

2. Let A and B be sets. Then $A \times B = B \times A$.

3. The complement of the set $\{1, 2, 3\}$ is the set $\mathbb{Z} \setminus \{1, 2, 3\}$.

Section 2.2 Operations on Sets (Part 1)

Notation

P 1. If the sets A and B do not have any common elements, how many elements does $A \cup B$ contain?

P 2. Let $A = \{a, b, c\}$ and $B = \{A, b, 3\}$. Find $A \cup B$ and $A \cap B$.

P 3. What is the complement of the set $\{1, 3, 9, 27\}$ with respect to the set

$$\{1, 2, 3, 4, 8, 9, 16, 27, 32, 81\}?$$

P 4. What is the complement of the set of rational number with respect to the set of real numbers?

Venn Diagram

P 5. Make a Venn diagram for the sets $A = \{1, 2, 3\}$, $B = \{1, 4, 5\}$, and $C = \{2, 5, 7\}$.

P 6. Let $A = \{1, 2\}$ and $B = \{x, y, z\}$. Find $B \times A$ and B^2.

P 7. Prove that for any sets A and B, $(A \cap B)^c = A^c \cup B^c$.