

2.2.18. Find $A \cap B \cap C$ if $A = \{x: 0 \leq x \leq 4\}$, $B = \{x: 2 \leq x \leq 6\}$, and $C = \{x: x = 0, 1, 2, \dots\}$.

2.2.26. Suppose that three events— A , B , and C —are defined on a sample space S . Use the union, intersection, and complement operations to represent each of the following events:

- (a) none of the three events occurs
- (b) all three of the events occur
- (c) only event A occurs
- (d) exactly one event occurs
- (e) exactly two events occur

2.2.34. Let A , B , and C be any three events. Use Venn diagrams to show that

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

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

2.3.2. Let A and B be any two events defined on S . Suppose that $P(A) = 0.4$, $P(B) = 0.5$, and $P(A \cap B) = 0.1$. What is the probability that A or B but not both occur?

2.4.2. Find $P(A \cap B)$ if $P(A) = 0.2$, $P(B) = 0.4$, and $P(A|B) + P(B|A) = 0.75$.