

MA162: Finite mathematics

Paul Koester

University of Kentucky

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SCHEDULE:

- Web Assign assignment (Chapter 6.1 and 6.2) due on Friday, October 25 by 6:00 pm.
- Exam 2 on Monday, October 28, 5:00 pm to 7:00 pm.

Today we look at Chapter 6.2

6.2: A two set inclusion-exclusion

- A survey of 5000 subscribers to a certain news paper revealed that 2700 people subscribe to the daily morning edition and 1800 subscribe to both the daily and the Sunday editions.
- How many subscribe to the Sunday edition?
- How many subscribe to the Sunday edition only?

6.2: Inclusion-exclusion with diagrams

- Given that $n(A \cap B) = 7$, $n(A) = 23$, $n(B) = 18$, and $n(U) = 45$, find each of the following:
- $n(A \cap B)$
- $n(A^c \cap B^c)$
- $n[(A \cap B)^c]$
- $n(A^c \cup B^c)$
- $n[(A \cap B^c) \cup (A^c \cap B)]$
- $n(U^c)$

6.2: Another two set inclusion-exclusion

- Of 500 clock radios with digital tuners and/or CD players sold recently in a department store, 400 had digital tuners and 290 had CD players.
- How many radios had a CD player but not a digital tuner?
- How many radios had a CD player or a digital tuner, but not both?

6.2: A three set inclusion-exclusion

- Let A , B , and C be subsets of a universal set U and suppose $n(U) = 200$, $n(A) = 21$, $n(B) = 23$, $n(C) = 27$, $n(A \cap B) = 8$, $n(A \cap C) = 12$, $n(B \cap C) = 15$, and $n(A \cap B \cap C) = 3$. Compute:
 - Find $n[A \cap (B \cup C)]$
 - Find $n[A \cap (B \cup C)^c]$

6.2: Another three set inclusion-exclusion

A survey of a group's viewing habits over the last year revealed the following information:

- 28% watched gymnastics
- 29% watched baseball
- 19% watched soccer
- 14% watched gymnastics and baseball
- 12% watched baseball and soccer
- 10% watched gymnastics and soccer
- 8% watched all three sports

Calculate the percentage of the group that watched none of the three sports during the last year.

6.2: Another inclusion-exclusion

An insurance company examines its pool of 1000 auto insurance customers and gathers the following information:

- All customers insure at least one car.
- 640 of the customers insure more than one car.
- 200 of the customers insure a sports car.
- Of those customers who insure more than one car, 15% insure a sports car.

How many customers insure exactly one car, and that car is not a sports car?