

Week in Review # 6

MATH 141

6.1,6.2,6.3,6.4

Drost-Fall 2001

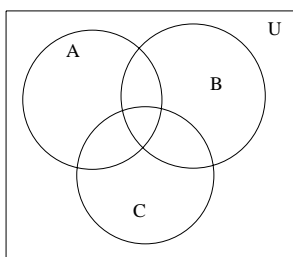
Chapter Six Review

1. Write each set with roster notation:

a) $A = \{x | x \in I, 2x - 4 > 3\}$

b) $B = \{x | x \text{ is a state west of California} \}$

2. Shade the region described below:



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

b) $B^c \cap A$

c) $(A \cap B \cap C)^c$

3. Describe each of the following:

$U = \{\text{students enrolled in this class}\}$

$A = \{\text{students who play bridge}\}$

$B = \{\text{students who live in dorms}\}$

$C = \{\text{students who drive an SUV}\}$

a) $A \cap C$

b) $B^c \cup A$

c) $C^c \cap B$

4. Given A and B are subsets of U,

$n(U) = 250, n(A) = 90, n(B) = 165,$

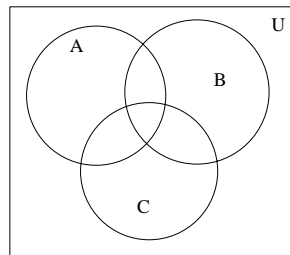
$n(A \cap B) = 25$

find each of the following.

a) $n(A \cup B)$

b) $n(A^c)$

c) $n(A^c \cup B^c)$



5. A poll of 200 shoppers found the following:

60 carried an American Express card

60 carried a Bank Americard

95 had Aggie Bucks

55 had at least two of these

20 had Bank Americard and Aggie Bucks

125 had American Express or Aggie Bucks

140 did not have American Express

105 had American Express or Bank Americard

a) how many shoppers carried all three cards?

b) how many had none of the three?

c) how many had only one card?

6. A box contains five biographies, four mysteries, and six children's books.

a) How many ways can these books be arranged on a shelf?

b) How many ways can these books be arranged if the biographies, mysteries and children's books are kept together?

7. How many different committees can be formed if it is composed of two faculty members and ten students, given that five faculty have applied and thirty students applied?

8. How many different arrangements are possible with the letters of the word: S U C C E S S

9. A box contains two red marbles, three blue marbles, and five black marbles. How many ways can you select one red, two blue and three black marbles? Each of the marbles has a different letter of the alphabet painted on its surface.

10. A shipment arrives of 500 batteries, 20 of which are defective. A sample of ten is selected at random.

a) In how many different ways can the samples be selected?

b) How many samples contain six defective batteries?

c) How many samples contain no defective batteries?

ANSWERS:

1a. $A = \{4,5,6,7,\dots\}$

1b. $B = \{\text{Hawaii, Alaska}\}$

2a. regions b,d,e

2b. regions a, d

2c. regions a, b, c, d, f, g, h

3a. students who play and drive an SUV

3b. students who play bridge or those who do not live in dorms

3c. students who live in dorms and do not drive an SUV

4a. 230

4b. 160

4c. 225

5a. $e=5$

5b. $h=45$

5c. $a+c+g=100$

6a. 1,307,674,368,000

6b. 12,441,600

7. 300,450,150

8. 420

9. 60

10a. $2.458105888 \times 10^{20}$

10b. $8.466337032 \times 10^{13}$

10c. $1.628032027 \times 10^{20}$