Smallest value: 15.30
biggest value: 23.78

B

chapter 2

section 2.1 2.

a. A: RRR LLL SSS

b. B:
RLS RSL LRS SRL LSR SLR

c. C:
RRL RRS RLR RSR LRR SRR

d. D:
RRL RRS RLR RSR LRR SRR
LLR LLS LRL LSL RLL SLL
SRR SSL SRS SLS RSS LSS

e. D':
RRR SSS LLL RLS RSL LRS
SRL LSR SLR

C ∪ D = D

D:
RRL RRS RLR RSR LRR SRR
LLR LLS LRL LSL RLL SLL
SRR SSL SRS SLS RSS LSS

C ∩ D = C

C:
RRL RRS RLR RSR LRR SRR

4. a. FFFF FFFV FFVF FVFF VFFF
FFVV FVFV VFFV VFVF WFF
FVVF FVVV VFVV VVFV VVVF

$C \cap D = C$

C:

RRL RRS RLR RSR LRR SRR

4. a. FFFF FFFV FFVF FVFF VFFF
FFVV FVFV VFFV VFVF VVFF
FVVF FVVV VFVV VVFV VVVF
VVVV

b. FFFV FFVF FVFF VFFF

c. FFFF VVVV

d. FFFF FFFV FFVF FVFF VFFF

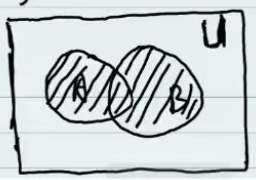
e. union:
FFFF FFFV FFVF FVFF VFFF
VVVV
intersection:
FFFF

f. union:
FFFV FFVF FVFF VFFF
FFFF VVVV
intersection:
$\emptyset$

9.

a. $(A \cup B)'$

$A \cup B$



FFFF VVVV

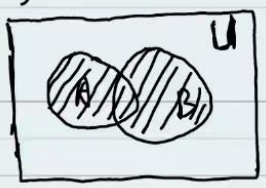
intersection:

∅

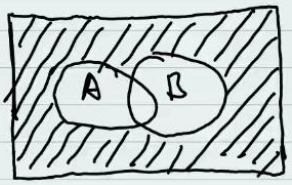
9.

a. $(A \cup B)'$

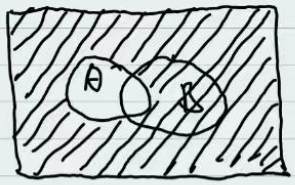
$A \cup B$



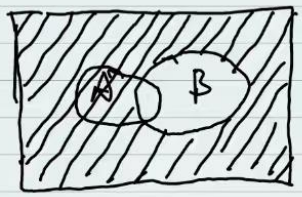
$(A \cup B)'$



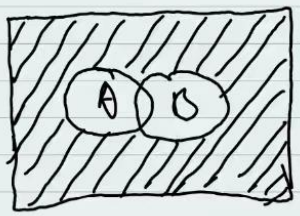
A'



B'



$A' \cap B'$



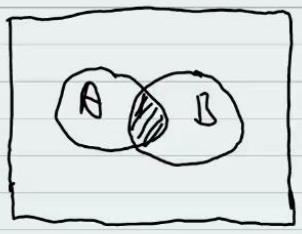
$(A \cup B)' = A' \cap B'$

b. $A \cap B$

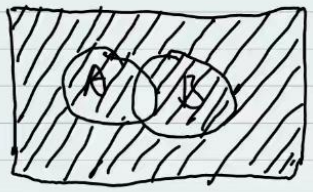
13

$(A \cup B)' = A' \cap B'$

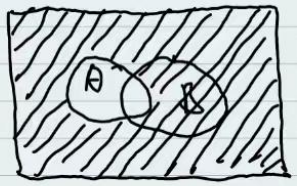
b. $A \cap B$



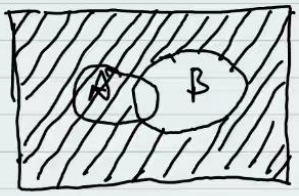
$(A \cap B)'$



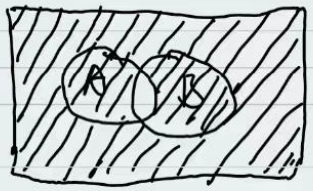
A'



B'



$A' \cup B'$



a.

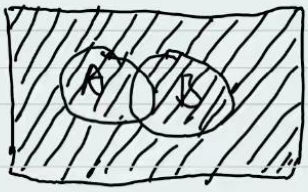
2.2 12. $P(A \cup B)$

$= P(A) + P(B) - P(A \cap B)$

$= 0.65$

b. $P((A \cup B)')$

$A' \cup B'$



a.

2.2 12. $P(A \cup B)$

$= P(A) + P(B) - P(A \cap B)$

$= 0.65$

b. $P((A \cup B)')$

$= 1 - P(A \cup B)$

$= 0.35$

c. In terms of A and B, the event that the selected student has a Visa card but not a MasterCard It's $P(A) - P(A \cap B)$

$P(A) - P(A \cap B) = 0.25$

15. Sol. Denote that at least two bulbs must be selected to obtain one that is rated 75W A

$P(A) = \frac{4}{6+5+4} \times \frac{3}{6+5+3}$

$= \frac{1}{30}$

27. a. $P(A) = \frac{1}{C_5^2} = \frac{1}{10}$

Equally likely outcomes

select: Anderson and Cox
Anderson and Cramer
Anderson and Fisher
Cox and Cramer
Cox and Fisher
Cramer and Fisher
Box and Cox
Box and Cramer
Box and Fisher

b. $P(B) = \frac{C_4^1 \times 2 + 1}{C_5^2}$

$= \frac{9}{10}$

c. $P(C) = \frac{C_1^1 + C_2^1 + C_2^1 + C_1^1}{C_5^2}$

$= \frac{3}{5}$

2.3

c. $P(C) = \frac{C_1^1 + C_2^1 + C_2^2 \cdot C_1^1}{C_5^2}$

$= \frac{3}{5}$

2.3

30. a. ways $= A_8^3 = 336$

b. ways $= C_{30}^6 = 593775$

c. ways $= C_8^2 \cdot C_{10}^2 \cdot C_{12}^2$

$= 83160$

d. $P(D) = \frac{C_8^2 \cdot C_{10}^2 \cdot C_{12}^2}{C_{30}^6} \times 100\%$

$\approx 14\%$ ✓

e. $P(\bar{E}) = \frac{C_8^6 + C_{10}^6 + C_{12}^6}{C_{30}^6} \times 100\%$

$\approx 1.4\%$ ✓

38. a. $P(A) = \frac{C_6^2 \cdot C_9^1}{C_{15}^3} = \frac{27}{91}$

b. $P(B) = \frac{C_4^3 + C_5^3 + C_6^3}{C_{15}^3} = \frac{7}{91}$

c. $P(C) = \frac{C_4^1 \cdot C_5^1 \cdot C_6^1}{\quad} \quad \frac{24}{\quad}$

38. a. $P(A) = \frac{C_6^2 \cdot C_9^1}{C_{15}^3} = \frac{27}{91}$

b. $P(B) = \frac{C_4^1 + C_5^2 + C_6^3}{C_{15}^3} = \frac{7}{91}$

c. $P(C) = \frac{C_4^1 \cdot C_5^1 \cdot C_6^1}{C_{15}^3} = \frac{24}{91}$

d. $P(D) = 1 - P(D')$

$= 1 - \left(\frac{6}{15} + \frac{9}{15}\cdot\frac{6}{14} + \frac{9}{15}\cdot\frac{8}{14}\cdot\frac{6}{13} + \frac{9}{15}\cdot\frac{8}{14}\cdot\frac{7}{13}\cdot\frac{6}{12} + \frac{9}{15}\cdot\frac{8}{14}\cdot\frac{7}{13}\cdot\frac{6}{12}\cdot\frac{6}{11}\right)$

≈ 0.958

40 a. No order:

$N(A) = 4^3 \times 7^3 \times 10^3$

$= 21952000$

Order:

$N(A_0) = 4^3 \times 7^3 \times 10^3 \times (A_3^3)^4$

$= 2844979200$

Because there is no order between each same element in A's, the ways ordered is reduced.

b. $P(D) = \frac{A_4^4}{A_{12}^{12}} = \frac{4!}{12!}$