

2.1 (2,4,9)

2. a.  $A = \{RRR, LLL, SSS\}$  ✓

b.  $B = \{RLS, RSL, LRS, LSR, SLR, SRL\}$

c.  $C = \{RRL, RRS, RLR, RSR, LRR, SRR\}$

d.  $D = \{RRL, RRS, RLR, RSR, LRR, SRR, LLS, LRS, LRL, LSL, RLL, LLS, SSR, SSL, SRS, SLS, RSS, LSS\}$  ✗

e.  $D' = \{RRR, SSS, LLL, RLS, RSL, LRS, LSR, SLR, SRL\}$  ✓

$C \cup D = D$

$C \cap D = C$  ✓

4. a.  $\beta = \{FFFF, VFFF, FVFF, FFVF, FFFV, VFFV, FVVF, FFVV, FVVF, VVFF, VFVF, FVVV, VFVV, VVVF, VVVV\}$  ✗

b.  $B = \{VFFF, FVFF, FFVF, FFFV\}$

c.  $C = \{FFFF, VVVV\}$

d.  $D = \{VFFF, FVFF, FFVF, FFFV, FFFF\}$

9.

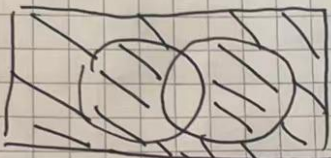
a.



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



b.



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

2.2 (12, 18, 21)

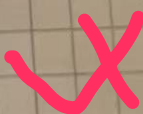
a.  $P(A \cup B) = P(A) + P(B) - P(A \cap B) = 0.65$

b.  $P(A \cup B)' = 1 - P(A \cup B) = 0.35$



c.  $P(\text{only visa}) = P(A) - P(A \cap B) = 0.25$

18.  $p = \frac{11}{15} \times \frac{4}{14} = \frac{44}{210}$





27. a.  $P = \frac{1}{C_5^1} = \frac{1}{10}$

b.  $P = \frac{C_5^2 - C_3^2}{C_5^2} = \frac{7}{10}$

c.  $P = \frac{3}{5}$

30. a).  $P_{3,8} = \frac{8!}{(8-3)!} = 336$   
 ~~$P_{8,3} = 336$~~

b.  $C_{30}^6 = \frac{30!}{24! \cdot 6!} = 594$

c.  $C_8^2 \cdot C_{10}^2 \cdot C_{12}^2 = 81360$

d.  $P = \frac{C_8^2 \cdot C_{10}^2 \cdot C_{12}^2}{C_{30}^6} = 0.14$

e.  $P = \frac{C_8^6 + C_{10}^6 + C_{12}^6}{C_{30}^6} =$

38.

$$a. p = \frac{C_6^2 C_9^1}{15 C_{15}^3} = \frac{27}{91}$$

$$b. p = \frac{C_4^3 + C_5^3 + C_6^3}{C_{15}^3} = \frac{34}{455}$$

$$c. p = \frac{C_6^1 C_5^1 C_4^1}{C_{15}^3} = \frac{24}{91}$$

$$d. p = \frac{51}{91} \left( \frac{C_6^2 C_9^1 + C_6^3 C_9^0 + C_6^4 C_9^{-1} + C_6^5 C_9^{-2}}{C_{15}^6} \right)$$

=

40.

$$a. 12! : 9!$$

$$b. \frac{4! (3!)^4}{(12!)}$$