

ΚΕΦΑΛΑΙΟ Ι: ΠΙΘΑΝΟΤΗΤΕΣ

(1.1)

(1)

ΔΕΙΓΜΑΤΙΚΟΣ ΧΥΡΟΣ - ΕΝΔΕΧΟΜΕΝΑ

Ερωτήσεις Σωστοί - Αλάθος

- (1) \wedge , (2) Σ (3) Σ (4) Σ (5) \wedge (6) Σ (7) \wedge (8) \wedge (9) \wedge (10) Σ
 (11) \wedge , (12) Σ (13) Σ (14) Σ (15) \wedge (16) \wedge (17) Σ (18) Σ (19) Σ
 (20) Σ (21) \wedge (22) Σ (23) \wedge (24) Σ (25) \wedge (26) Σ (27) \wedge (28) \wedge
 (29) \wedge (30) Σ

Ερωτήσεις Πολλαπλοίς Επιλογές

- (1) ε (2) α (3) γ (4) δ (5) α (6) δ (7) α (8) B
 (9) B (10) ε

Ασκίσεις Αυτοτοιχιών

$$\textcircled{1} \quad (1) \rightarrow \varepsilon \quad (2) \rightarrow \alpha \quad (3) \rightarrow \delta \quad (4) \quad B$$

$$\textcircled{2} \quad (1) \rightarrow \delta \quad (2) \rightarrow \gamma \quad (3) \rightarrow B \quad (4) \rightarrow \gamma \quad (5) \rightarrow \alpha \quad (6) \rightarrow \varepsilon$$

$$\textcircled{3} \quad (\alpha) \rightarrow (3), (IV), (B) \rightarrow III \quad (8) \rightarrow (2), (II)$$

$$(5) \rightarrow (1), (IV), (\varepsilon) \rightarrow (I), (4)$$

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

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

$$\alpha \rho \alpha \quad (1), (4)$$

(2)

Axiomatic Random

$$(1) \quad \Omega = \{(1,1), (1,2), (1,3), (1,4), (1,5), (1,6), (2,1), (2,2), (2,3), \\ (i) \quad (2,4), (2,5), (2,6), (3,1), (3,2), (3,3), (3,4), (3,5), (3,6), \\ (4,1), (4,2), (4,3), (4,4), (4,5), (4,6), (5,1), (5,2), (5,3) \\ (5,4), (5,5), (5,6), (6,1), (6,2), (6,3), (6,4), (6,5), (6,6)\}$$

$$N(\Omega) = 36$$

$$(ii)(a) A = \{(2,2), (2,4), (2,6), (4,2), (4,4), (4,6), (6,2), (6,4), (6,6)\}$$

$$N(A) = 9$$

$$(B) \quad B = \{(1,2), (1,3), (1,4), (1,5), (1,6), (2,3), (2,4), (2,5), (2,6), (3,4) \\ (3,5), (3,6), (4,5), (4,6), (5,6)\}$$

$$N(B) = 15$$

$$(C) \quad \Gamma = \{(1,1), (2,2), (3,3), (4,4), (5,5), (6,6)\}$$

$$N(\Gamma) = 6$$

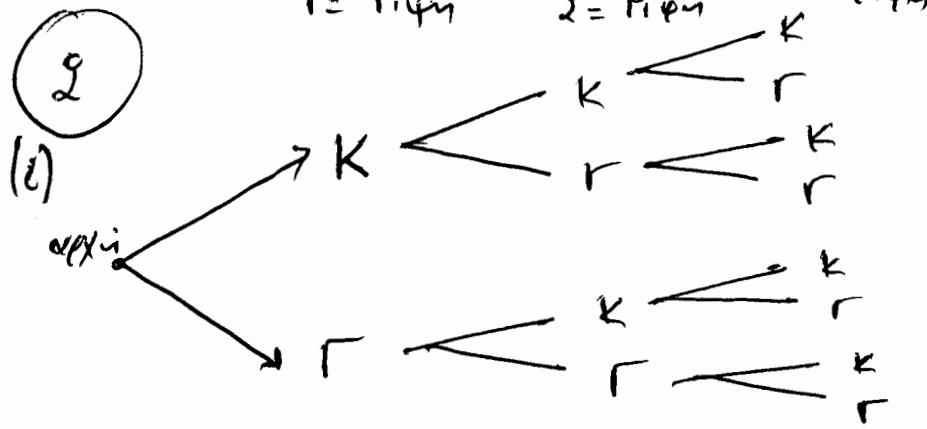
$$(D) \quad \Delta = \{(2,6), (4,6), (6,6)\}$$

$$N(\Delta) = 3$$

$$(E) \quad E = \{(2,6), (3,5), (4,4), (5,3), (6,2)\}$$

$$N(E) = 5$$

(3)



$$\Omega = \{KKK, KKR, KRK, KRG, RKK, RKG, RRK, RRG\}$$

$$N(\Omega) = 8$$

(ii) $A = \{KKK, KKR, KRK, KRG\} \quad N(A) = 4$

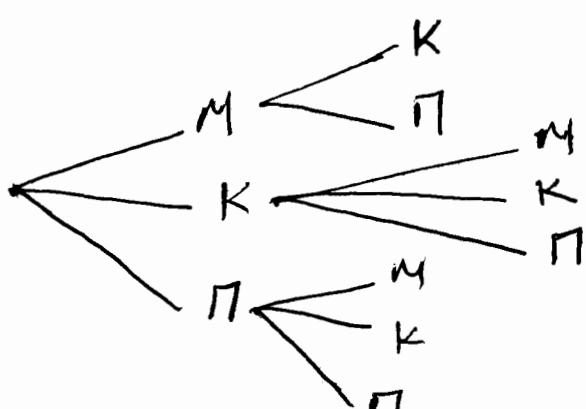
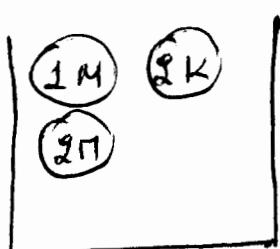
$$B = \{KKK, KRG, RKG, RRG\} \quad N(B) = 4$$

(i) $A \cap B = \{KKK, KRG\}$ (iii) Η πρώτη και η τελείωτη Ριψη είναι K

$$A' = \{RKK, RKG, RRK, RRG\} \quad \text{Η πρώτη ριψη δεν είναι κονκαρδήγια}$$

$$B' = \{KKR, KRG, RKK, RRG\} \quad \text{Η πρώτη και η τελείωτη ριψη έχουν διαφορετικά αποτελέσματα.}$$

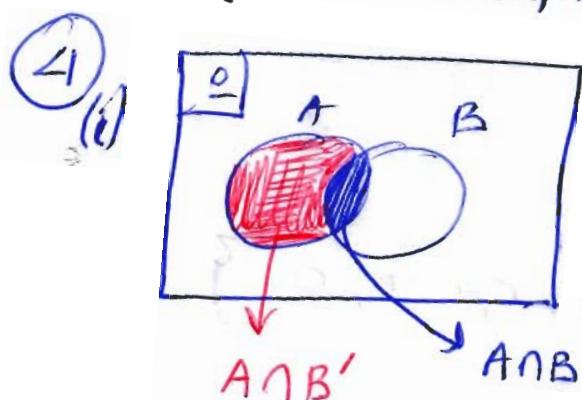
3



(i) $\Omega = \{MK, MΠ, KM, KK, KΠ, ΠM, ΠK, ΠΠ\}$

$$A = \{ KK, \pi\pi \}, B = \{ MK, M\pi, KM, \pi M \}$$

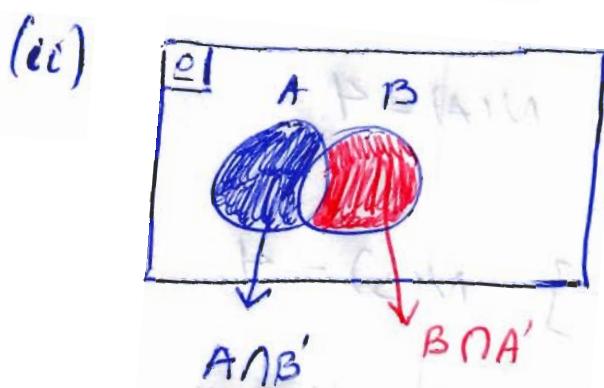
$$\Gamma = \{ KK, K\pi, MK, \pi\pi \}$$



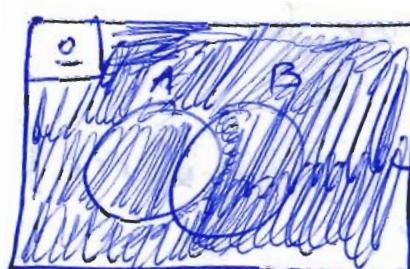
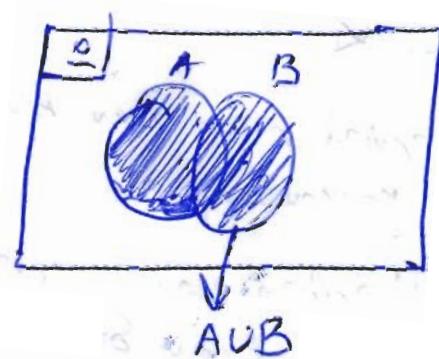
Παρατηρούμε ότι

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

Λεπτός είναι κανένα ποικιλία το $A \cap B'$
με το $A \cap B$



Αρα $(A \cap B) \cup (B \cap A')$ είναι τα
δύο γεγονότα που συμβαίνουν χωρίς

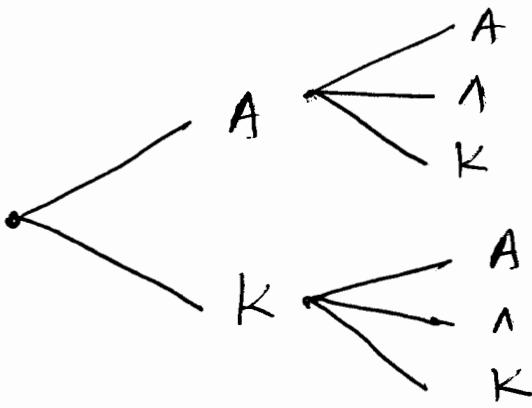


Προφαίνεται ότι κανένα ποικιλία των $A \cup B$ και $(A \cap B)'$

Είναι το $(A \cap B') \cup (B \cap A')$

(5)

⑤



$$(i) \quad \Sigma = \{ AA, AK, KA, KK \}$$

$$(ii) \quad (a) \quad A = \{ AA, KA \}$$

$$(B) \quad B = \{ KA, KK \}$$

⑥

$$\Sigma = \{(1,1), (1,2), (1,3), (1,4), (1,5), (1,6), (2,1), (2,2), (2,3), (2,4), (2,5), (2,6), (3,1), (3,2), (3,3), (3,4), (3,5), (3,6), (4,1), (4,2), (4,3), (4,4), (4,5), (4,6), (5,1), (5,2), (5,3), (5,4), (5,5), (5,6), (6,1), (6,2), (6,3), (6,4), (6,5), (6,6)\}$$

$$A = \{(1,6), (2,5), (3,4), (4,3), (5,2), (6,1)\}$$

$$B = \{(1,3), (1,6), (2,3), (2,6), (3,1), (3,2), (3,3), (3,4), (3,5), (3,6), (4,3), (4,6), (5,3), (5,6), (6,1), (6,2), (6,3), (6,4), (6,5), (6,6)\}$$

$$\Gamma = \{(2,1), (4,1), (4,2), (4,3), (6,1), (6,2), (6,3), (6,4), (6,5)\}$$

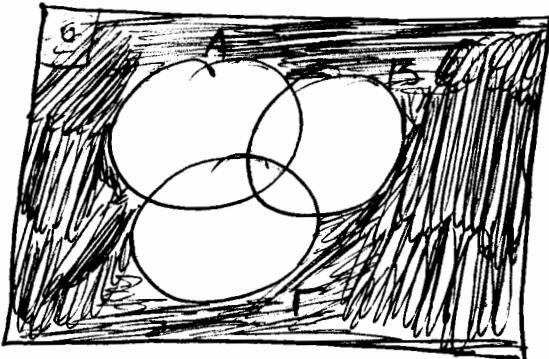
$$A \cap B = \{(1,6), (3,4), (4,3), (6,1)\}$$

$$A \cap \Gamma = \{(4,3), (6,1)\}$$

$$A_{\text{rel}}(A \cap \Gamma)' = \{(1,1), (1,2), (1,3), (1,4), (1,5), (1,6), (2,1), (2,2), (2,3), (2,4), (2,5), (2,6), (3,1), (3,2), (3,3), (3,4), (3,5), (3,6), (4,1), (4,2), (4,3), (4,4), (4,5), (4,6), (5,1), (5,2), (5,3), (5,4), (5,5), (5,6), (6,1), (6,2), (6,3), (6,4), (6,5), (6,6)\}$$

(6)

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



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

