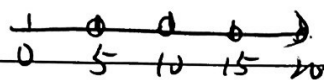


P33 11.

设甲在X时刻到, 乙在Y时刻到.

1. $0 \leq X \leq 20$ $0 \leq Y \leq 20$

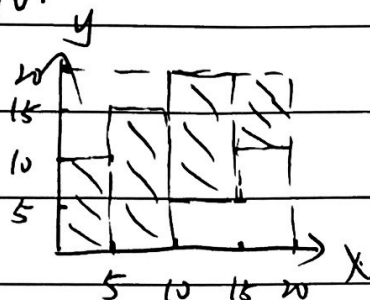


~~$X+5 \leq Y \leq X+5$~~ ① $0 \leq X \leq 5$ 时, $0 \leq Y \leq 10$.

② $5 \leq X \leq 10$, $0 \leq Y \leq 15$.

③ $10 \leq X \leq 15$, $5 \leq Y \leq 20$.

④ $15 \leq X \leq 20$, $10 \leq Y \leq 20$.



2. $P(A) = \frac{50 \times 2 + 2 \times 7.5}{400} = \frac{5}{8}$.

P36. 14

$P(AB) = 5\%$ $P(A\bar{B}) = 15\%$ $P(\bar{A}B) = 10\%$ $P(\bar{A}\bar{B}) = 70\%$.

(1) $P(A) = P(A \cup \emptyset) = P(A \cup (B \cup \bar{B})) = P(A \cup B \cup A\bar{B})$
 $= P(AB) + P(A\bar{B}) = 20\%$.

(2) $P(B) = P(B \cup \emptyset) = P(B \cup (A \cup \bar{A})) = P(B \cup A \cup \bar{A}\bar{B})$
 $= P(AB) + P(\bar{A}B) = 15\%$.

(3) $P(B|A) = \frac{P(AB)}{P(A)} = \frac{5\%}{20\%} = 25\%$.

(4) $P(B|\bar{A}) = \frac{P(\bar{A}B)}{P(\bar{A})} = \frac{10\%}{80\%} = 12.5\%$.

(5) $P(A|\bar{B}) = \frac{P(A\bar{B})}{P(\bar{B})} = \frac{15\%}{85\%} = \frac{3}{17}$.

(6) $P(A|B) = \frac{P(AB)}{P(B)} = \frac{5\%}{15\%} = \frac{1}{3}$.

P34 17

$i \rightarrow j$

设 $A_i = \{\text{第 } i \text{ 次试验未损坏}\}$. $A_i A_j = \emptyset$, $A_{i+1} \subset A_i$, $A_i \subset A_j$

$$P(A_1) = 0.99, P(A_2|A_1) = 0.92, P(A_3|A_1 A_2) = 0.85.$$

$$~~P(A_1)~~ P(A_3|A_1 A_2) = \text{---} P(A_3) = P(A_3|A_1 A_2) \cdot P(A_1 A_2).$$

$$P(A_1 A_2 A_3) = P(A_3) = P(A_3|A_1 A_2) \cdot P(A_1 A_2).$$

$$\therefore P(A_3) = P(A_3|A_1 A_2) \cdot P(A_2) = P(A_3|A_1 A_2) \cdot P(A_2|A_1) \cdot P(A_1)$$

$$= 0.99 \times 0.92 \times 0.85 = \text{---} 0.77418.$$

P34. 20

$A = \{\text{甲中}\}$ $B = \{\text{乙中}\}$, $C = \{\text{丙中}\}$ $D_i = \{i=1, 2, 3 \text{ 分别属于甲, 乙, 丙被选中}\}$.

$$P(A) = 0.1, P(B) = 0.2, P(C) = 0.3, P(D_i) = \frac{1}{3}$$

$$(1) \text{---} P(D_1) \cdot P(\bar{A})^2 + P(D_2) \cdot P(\bar{B})^2 + P(D_3) \cdot P(\bar{C})^2 \cdot P(C) \cdot C_2^1$$

$$\therefore \text{---} \bar{P} = \text{---} P = 0.356.$$

(2) $\cdot P(D_3|E)$ $E = \{\text{全中一次}\}$

$$= \frac{P(D_3 E)}{P(E)} = \frac{P(D_3) \cdot P(E|D_3)}{P(E)} = \frac{\frac{1}{3} \times \text{---} (0.7 \times 0.7 \times 0.3) \times C_2^1}{0.356}$$

$$= 0.413$$

P34. 22

$A_i = \{\text{第一张为 } i\}$. $B_i = \{\text{第二张为 } i\}$. $C = \{\text{和} > 6\}$.

$$6 \leq (1, 5), (2, 4), \text{---} (4, 2), (5, 1).$$

$$\text{---} (1, 6), (2, 5), (3, 4), (4, 3), (5, 2), \text{---} (6, 1).$$

$$\text{---} (1, 1), (3, 5), (4, 5, 3)$$

$$(4, 5) (5, 4)$$

$$\therefore P(A_1) = \frac{1}{12} \quad P(A_2) = \frac{2}{12} \quad P(A_3) = \frac{2}{12}$$

$$P(A_4) = \frac{3}{12} \quad P(A_5) = \frac{4}{12} \quad \therefore \underline{\underline{5}}.$$

p34. 23.

$$A_i = \{\text{装入第 } i \text{ 件次品}\} \quad P(A_i) = \frac{1}{5}$$

$$B_i = \{\text{取出第 } i \text{ 件正品}\}, \quad C = \{\text{第一件不是次品}\}.$$

$$D = \{\text{没有次品}\}.$$

$$(1) \quad P(C) = \sum_{i=0}^4 P(C|A_i) \cdot P(A_i) = \frac{1}{5} + \frac{1}{5} \times \frac{3}{4} + \frac{1}{5} \times \frac{1}{2} + \frac{1}{5} \times \frac{1}{4} + \frac{1}{5} \times 0 = \frac{1}{2}$$

$$(2) \quad P(D|C) = \frac{P(D \cap C)}{P(C)} = \frac{P(D) \cdot P(C|D)}{P(C)} = \frac{P(D)}{P(C)} = \frac{\frac{1}{5}}{\frac{1}{2}} = \frac{2}{5}$$

$$D \subset C \therefore P(D \cap C) = P(D), \quad P(C|D) = 1$$

p34. 25.

$$A_i = \{i=1 \sim 4, \text{ 盒子 } 0, A, B, AB\}.$$

$$P(A_1) = 0.46, \quad P(A_2) = 0.4, \quad P(A_3) = 0.11, \quad P(A_4) = 0.03$$

$$(1) \quad P = \left(\frac{1}{5} \cdot P(A_1)^2 \cdot A_3\right) \cdot P(A_2) \cdot P(A_3) \cdot P(A_4) = 0.0168$$

$$(2) \quad P = \left(\frac{1}{5} P(A_1)^3 \cdot P(A_2)^2\right) = 0.156$$

$$(3) \quad P = \left(1 - P(A_4)\right)^5 = 0.859$$

3. 1.

$$P(A\bar{B}) = P(A) - P(AB) = P(A) - P(AB)$$

$$P(A \cup B) = P(A) + P(B) - P(AB) \Rightarrow P(AB) = 0.1$$

$$\therefore P(A\bar{B}) = 0.3$$

$$P(\bar{A}|\bar{B}) = \frac{P(\bar{A}\bar{B})}{P(\bar{B})}, \quad P(\bar{B}) = 0.7, \quad P(\bar{A}\bar{B}) = P(\bar{A} \cup \bar{B}) = 1 - P(A \cup B)$$

$$\therefore P(\bar{A}|\bar{B}) = \frac{4}{7}$$

补2:

$$(1) P = \frac{1}{2} \times \frac{2}{3} \times \dots \times \frac{n}{n+1} = \frac{1}{n+1}$$

$$(2) P = \frac{1}{2} \times \frac{2}{3} \times \dots \times \frac{1}{n+1} = \frac{1}{n(n+1)}$$

补3.

$$D_i = \{\text{抽第 } i \text{ 个区的}\} P(D_i) = \frac{1}{3}$$

$$A_i = \{\text{抽到女生, 第 } i \text{ 个}\} P(A_1) = \frac{3}{10} P(A_2) = \frac{7}{15} P(A_3) = \frac{5}{15}$$

$$(1) P = \sum_{i=1}^3 P(D_i) \cdot P(A_i) \cdot P(\bar{A}_i) C_i$$

$$P = \frac{1}{3} \times \frac{C_3^1 \cdot C_7^0}{C_{10}^1} + \frac{1}{3} \times \frac{C_7^1 \cdot C_8^0}{C_{15}^1} + \frac{1}{3} \times \frac{C_5^1 \cdot C_{10}^0}{C_{15}^1}$$

$$(1) P = \frac{1}{3} \left(\frac{3}{10} + \frac{7}{15} + \frac{5}{15} \right) = \frac{29}{90}$$

$$(2) A_i = \{\text{先抽到女生, 第 } i \text{ 个}\} P(A_1) = \frac{3}{10}, P(A_2) = \frac{7}{15}, P(A_3) = \frac{5}{15} = \frac{1}{3}$$

$$B_i = \{\text{后抽到男生}\} P(B_1) = \frac{3}{10} \times \frac{7}{9} + \frac{7}{10} \times \frac{6}{9} = \frac{63}{90} = \frac{7}{10}$$

$$P(B_2) = \frac{7}{15} \times \frac{8}{14} + \frac{8}{15} \times \frac{7}{14} = \frac{8}{15}$$

$$P(B_i) = P(B_i|A_i) + P(B_i|\bar{A}_i)$$

$$P(B_3) = \frac{5}{15} \times \frac{20}{24} + \frac{20}{15} \times \frac{9}{24} = \frac{4}{5}$$

$$1. P = \sum_{i=1}^3 P(D_i) \cdot P(A_i|B_i)$$

$$P(A_i|B_i) = \frac{P(A_i B_i)}{P(B_i)} = \frac{P(A_i) P(B_i|A_i)}{P(B_i)}$$

$P(A_i)$ 已知, $P(B_i|A_i)$ 已知

$$2. P = \frac{25}{72}$$