1、(2) $S=\{2,3,4,5,6,7,8,9,10,11,12\}$

(4) $S=\{4,5,6,7,8,9,10\}$

(6) $S=\{0<x<1\}$

2、(1) $S=\{1,2,3,4,5,6,7,8,9,13\}$

(2) $A=\{1,3,5,7,9\}$

$B=\{2,4,6,8,10\}$

3、(1) $A_1A_2$ (2) $\bar{A}_1\bar{A}_2$ (3) $A_1\bar{A}_2+\bar{A}_1A_2$

(4) $A_1+A_2$

4、(2) ~~$A+B+C$~~ $A\bar{B}\bar{C}+\bar{A}B\bar{C}+\bar{A}\bar{B}C$ (4) $A+B+C$

(6) $\bar{A}\bar{B}\bar{C}+A\bar{B}\bar{C}+\bar{A}B\bar{C}+\bar{A}\bar{B}C$

(8) $ABC$

习题1.3

1. (1) $P=\frac{C_6^2+C_4^2+C_2^2}{C_8^2}=\frac{22}{56}=\frac{11}{28}$

(2) $P=1-\frac{C_4^2}{C_8^2}=\frac{13}{14}$

2. (1) $P=\frac{6\times5\times4\times3}{6^4}=\frac{5}{18}$

(2) $P=\frac{C_6^4\times2}{6^4}+1$

$=\frac{7}{8}$

4. (1) $P=\frac{-364^{1000}}{365^{1000}}+1$

(2) $P=\frac{12\times11\times10\times9}{12^5}$

1.4

1. $P=\frac{3}{4}\times\frac{38}{51}\times\frac{13}{50}$

2. $P=\frac{C_5^3+C_5^2\times C_3^1}{C_8^3}=\frac{8}{11}$

$P=\frac{C_5^3}{C_8^3}+1=\frac{C_8^3-1}{C_8^3}$

4. $P(B|A)=\frac{P(AB)}{P(A)}$

$=\frac{\frac{14}{36}}{\frac{32}{36}}=\frac{7}{16}$

$P(A|B)=\frac{\frac{14}{36}}{\frac{15}{36}}=\frac{14}{15}$

1、 $B_i$：从甲袋取出 $i$ 只红球

$A$：乙中取出一只红球

$$P(B_1|A)=\frac{P(AB_1)}{P(A)}=\frac{P(B_1)P(A|B_1)}{\sum_{i=0}^{2}P(B_i)P(A|B_i)}$$

$$=\frac{12}{25}$$

2、 $C$

$D_1$：A生产

$D_2$：B生产

$$P(D_1|A)=\frac{P(AD_1)}{P(A)}=\frac{P(D_1)P(A|D_1)}{\sum_{i=1}^{2}P(D_i)P(A|D_i)}$$

$$=\frac{\frac{3}{5}\times\frac{1}{100}}{\frac{3}{5}\times\frac{1}{100}+\frac{2}{5}\times\frac{2}{100}}$$

$$=\frac{3}{7}$$

4、

$B_1$：0.98

$B_2$：0.05

$$P(A)=\sum_{i=1}^{2}P(B_i)P(A|B_i)$$

$$=0.98\times0.96+0.05$$

$$P(B_1|A)=\frac{P(AB_1)}{P(A)}=\frac{P(B_1)}{P(A)}$$

$$P(合格)=0.96\times0.98+0.05\times0.0$$

$$P(废)=\frac{0.04\times0.95}{0.96\times0.02+0.04\times0.9}$$

习题1.6

2. $P = 1 - 0.5 \times 0.7 \times 0.6 \times 0.8$

$= 0.832$

4. (1) $P = \frac{4}{8} \times \frac{3}{8} = \frac{1}{14}$

(2) $P = \frac{2}{8} \times \frac{5}{8} = \frac{5}{24}$

(3) $P = \frac{4}{8} \times \frac{5}{8} + \frac{2}{8} \times \frac{3}{8}$

$= \frac{13}{24}$

6. $P = 1 - 0.5 \times 0.4 \times 0.2 - 0.5 \times 0.4 \times 0.2$

$- 0.5 \times 0.6 \times 0.2 - 0.5 \times 0.4 \times 0.8$

$= 0.7$