

第一章

Problem

10.

10,

(a) $8!$

(b) $7! \times 2!$

(c) $4! \times \binom{2}{1} \times 4!$

(d) $4! \times 5!$

(e) $4! \times 2^4$

第二章

Problem

52.

$$\begin{aligned}
 &^{52} (a) \frac{\binom{10}{8} \left(\binom{2}{1} \right)^8}{\binom{20}{8}} = \frac{20 \times 18 \times 16 \times 14 \times 12 \times 10 \times 8 \times 6}{20 \times 19 \times 18 \times 17 \times 16 \times 15 \times 14 \times 13} \quad \# \\
 &(b) \text{ (法一)} \frac{\binom{10}{1} \binom{2}{2} \binom{9}{6} \left(\binom{2}{1} \right)^6}{\binom{20}{8}} \quad \# \\
 &\text{ (法二)} \frac{\binom{10}{1} \binom{2}{2} \binom{18}{1} \binom{16}{1} \binom{14}{1} \binom{12}{1} \binom{10}{1} \binom{8}{1} \times \frac{1}{6!}}{\binom{20}{8}} \quad \#
 \end{aligned}$$

55.

$$\begin{aligned}
 &^{55} (a) P(SUHVDVC) = P(S) + \dots - P(SHDC) \\
 &= \frac{4 \binom{2}{2} \binom{50}{11}}{\binom{52}{13}} - \frac{6 \binom{2}{2} \binom{2}{2} \binom{48}{9}}{\binom{52}{13}} + \frac{4 \binom{2}{2}^3 \binom{46}{7}}{\binom{52}{13}} - \frac{\binom{2}{2}^4 \binom{44}{5}}{\binom{52}{13}} \\
 &= \frac{4 \binom{50}{11} - 6 \binom{48}{9} + 4 \binom{46}{7} - \binom{44}{5}}{\binom{52}{13}} \quad \# \\
 &(b) P(1U2U \dots U13) \\
 &= \frac{13 \binom{48}{9}}{\binom{52}{13}} - \frac{\binom{13}{2} \binom{44}{5}}{\binom{52}{13}} + \frac{\binom{13}{3} \binom{40}{1}}{\binom{52}{13}} \quad \#
 \end{aligned}$$

第三章

Problem

40.

40.

$$P\{\text{tails} | w\} = \frac{\frac{1}{2} \times \frac{3}{15}}{\frac{1}{2} \times \frac{5}{12} + \frac{1}{2} \times \frac{3}{15}}$$
$$= \frac{12}{25 + 12} = \frac{12}{37}$$

✖