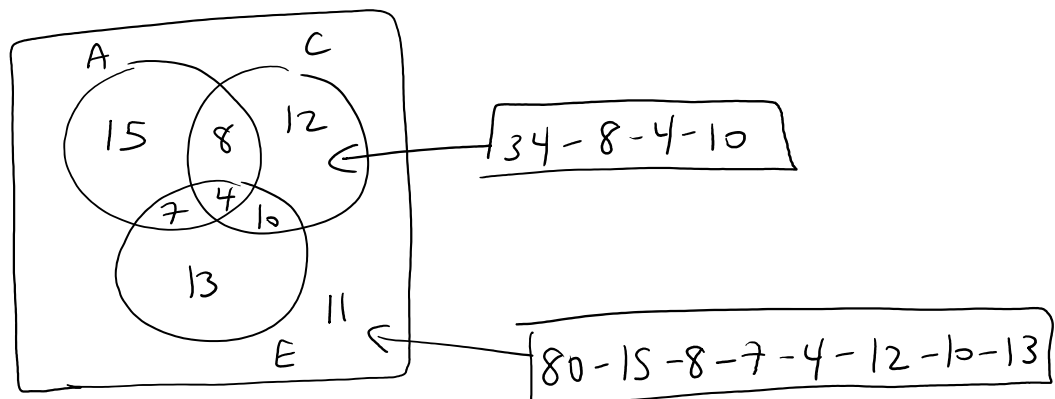
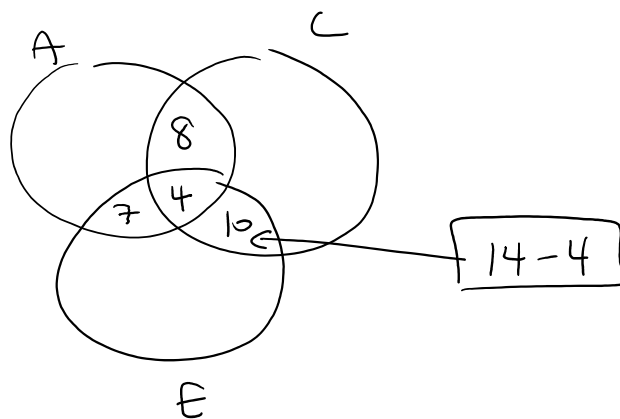


① a) $S' = \{a, x, z\}$
 $S' \cap R = \{a, z\}$

b) $R \cup S = \{a, b, w, y, z\}$
 $(R \cup S)' = \{x\}$

② $A = \text{Asia}$
 $C = \text{Caribbean}$
 $E = \text{Europe}$



$$\textcircled{3} \quad \text{a) } P(12, 12) = 479, 001, 600$$

$$\text{b) } P(12, 6) = 665, 280$$

$$\text{c) } 12^6 = 2, 985, 984$$

$$\textcircled{4} \quad \frac{8}{\underline{\quad}} \times \frac{7}{\underline{\quad}} \times \frac{7}{\underline{\quad}} \times \frac{7}{\underline{\quad}} \times \underbrace{\frac{1}{\underline{\quad}} \times \frac{1}{\underline{\quad}} \times \frac{1}{\underline{\quad}}}_{\text{fixed}}$$

$$= 2744$$

$$\textcircled{5} \quad C(20, 3) \times C(10, 2) + C(20, 4) \times C(10, 1) + C(20, 5)$$



3B and 2T OR 4B and 1T OR 5B

$$= 115, 254$$

$$\textcircled{6} \quad \{w, x, y\}, \{w, x, z\}, \{w, y, z\}, \\ \{x, y, z\}, \{w, x, y, z\}$$

⑦ a)

$$\text{Let } \Pr(B) = x$$

$$\Pr(D) = 4x$$

$$\Pr(B) + \Pr(C) + \Pr(D) + \Pr(E) = 1$$

$$x + 0.09 + 4x + 0.31 = 1$$

$$5x = 0.6$$

$$x = 0.12$$

Outcome	Probability
B	0.12
C	0.09
D	0.48
E	0.31

$$\begin{aligned} \text{b) } \Pr(F) &= \Pr(C) + \Pr(D) \\ &= 0.57 \end{aligned}$$