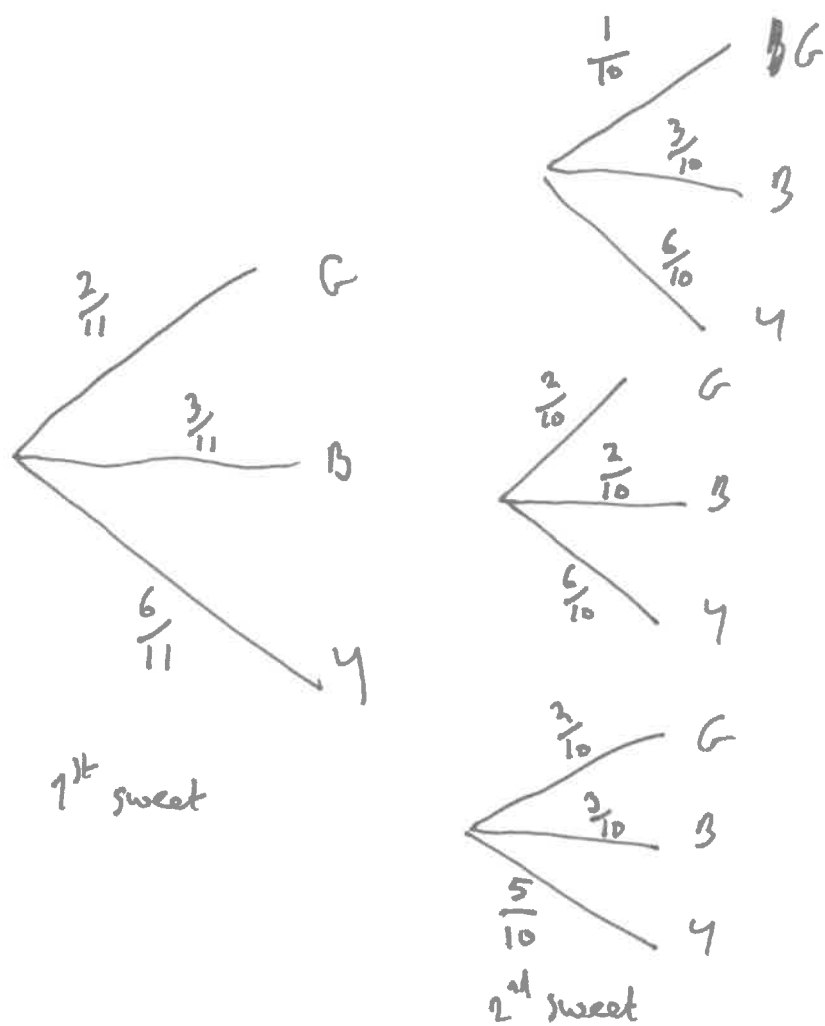


①



$$1a) P(\underline{Y \text{ AND } Y}) = \frac{6}{11} \times \frac{5}{10} = \frac{30}{110}$$

$$\begin{aligned}
 (b) P(\text{No black}) &= P(G \text{ AND } G) + P(G \text{ AND } Y) + P(Y \text{ AND } G) + P(Y \text{ AND } Y) \\
 &= \left(\frac{2}{11} \times \frac{1}{10} \right) + \left(\frac{2}{11} \times \frac{6}{10} \right) + \left(\frac{6}{11} \times \frac{2}{10} \right) + \left(\frac{6}{11} \times \frac{5}{10} \right) \\
 &= \frac{2}{110} + \frac{12}{110} + \frac{12}{110} + \frac{30}{110} \\
 &= \frac{56}{110}
 \end{aligned}$$

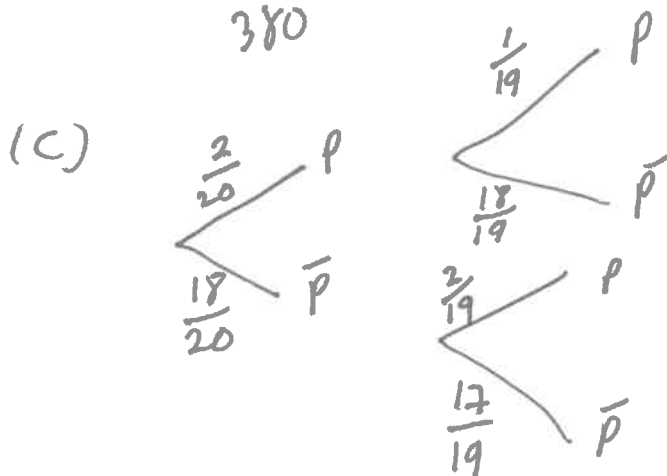
$$(2) (a) P(\text{both banana}) = \frac{7}{20} \times \frac{6}{19} = \frac{42}{380}$$

$$(b) P(\text{both lemon}) + P(\text{both pineapple})$$

$$\left(\frac{5}{20} \times \frac{4}{19} \right) + \left(\frac{2}{20} \times \frac{1}{19} \right)$$

$$= \frac{20}{380} + \frac{2}{380}$$

$$= \frac{22}{380}$$



$$P(\text{exactly 1 pineapple})$$

$$= P(P \text{ AND } \bar{P}) + P(\bar{P} \text{ AND } P)$$

$$= \left(\frac{2}{20} \times \frac{18}{19} \right) + \left(\frac{18}{20} \times \frac{2}{19} \right)$$

$$= \frac{36}{380} + \frac{36}{380}$$

$$= \frac{72}{380}$$

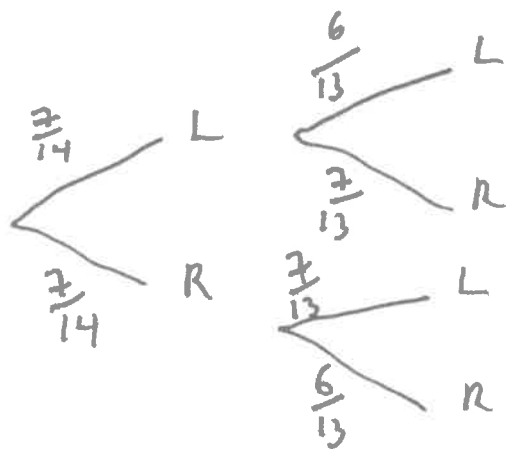
$$(d) 1 - P(\bar{L} \text{ AND } \bar{L})$$

$$1 - \left(\frac{15}{20} \times \frac{14}{19} \right)$$

$$1 - \frac{210}{380}$$

$$\frac{380}{380} - \frac{210}{380} = \frac{170}{380}$$

3)



1a) $P(LR) + P(RL)$

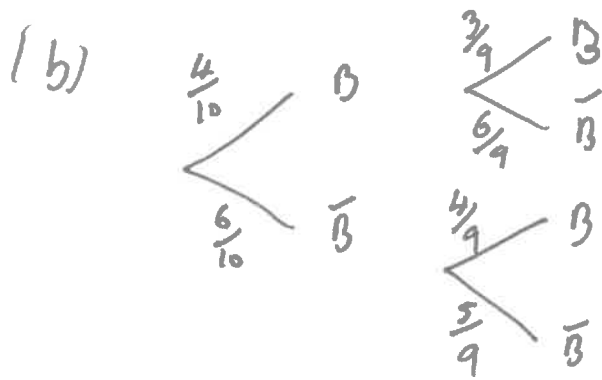
$$\left(\frac{7}{14} \times \frac{7}{13}\right) + \left(\frac{7}{14} \times \frac{7}{13}\right) = \frac{49}{182} + \frac{49}{182} = \frac{98}{182}$$

(b) $P(RR) + P(QO) + P(44) + P(GG) + P(BB) + P(II) + P(W)$

$$= \left(\frac{2}{14} \times \frac{1}{13}\right) \times 7$$

$$= \frac{2}{182} \times 7 = \frac{14}{182}$$

$$\begin{aligned}
 (4) \quad & P(RR) + P(BB) + P(WW) \\
 &= \left(\frac{5}{10} \times \frac{4}{9} \right) + \left(\frac{4}{10} \times \frac{3}{9} \right) + \left(\frac{1}{10} \times 0 \right) \\
 &= \frac{20}{90} + \frac{12}{90} = \frac{32}{90}
 \end{aligned}$$



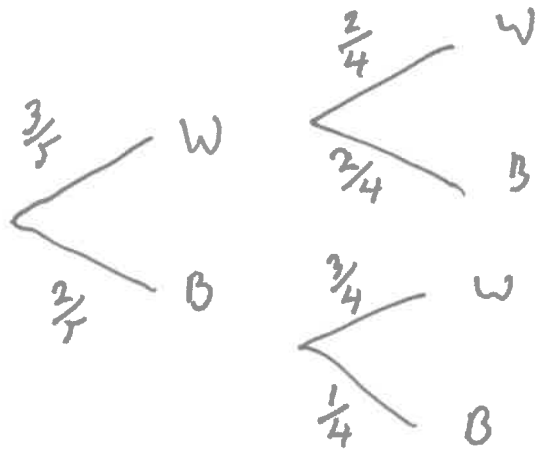
$$\begin{aligned}
 P(\text{at least 1 blue}) &= 1 - P(\bar{B}\bar{B}) \\
 &= 1 - \left(\frac{6}{10} \times \frac{5}{9} \right) \\
 &= \frac{90}{90} - \frac{30}{90} \\
 &= \frac{60}{90}.
 \end{aligned}$$

5

$$\begin{array}{cc} W & B \\ 60 & : 40 \end{array}$$

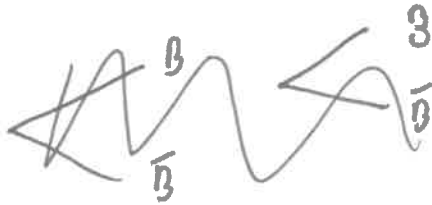
$$6 : 4$$

$$3 : 2$$



$$(a) P(B B) = \frac{2}{5} \times \frac{1}{4} = \frac{2}{20}$$

(b)



$$P(\text{at least one black})$$

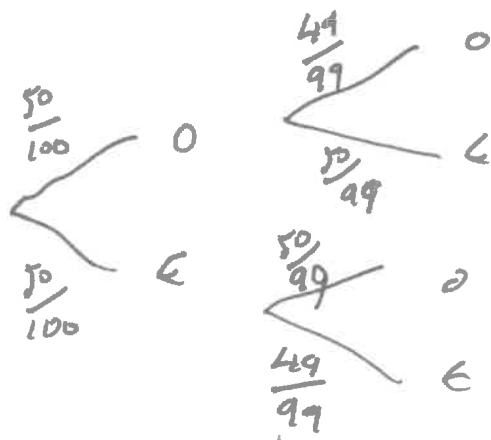
$$= 1 - P(WW)$$

$$= 1 - \left(\frac{3}{5} \times \frac{2}{4} \right)$$

$$= \frac{20}{20} - \frac{6}{20}$$

$$= \frac{14}{20}$$

(6) a)



$$(a) P(0€) + P(€0)$$

$$\left(\frac{50}{100} \times \frac{50}{99} \right) + \left(\frac{50}{100} \times \frac{50}{99} \right)$$

$$\frac{2500}{9900} + \frac{2500}{9900} = \frac{5000}{9900}$$

$$(b) P(\text{at least one odd}) = 1 - P(€€)$$

$$= 1 - \left(\frac{50}{100} \times \frac{49}{99} \right)$$

$$= \frac{9900}{9900} - \frac{2450}{9900}$$

$$= \frac{7450}{9900}$$