

Probabilities add up to total.

1.

$$a) P(H) = P(H/G) \cdot P(G) + P(H/G^c) \cdot P(G^c)$$

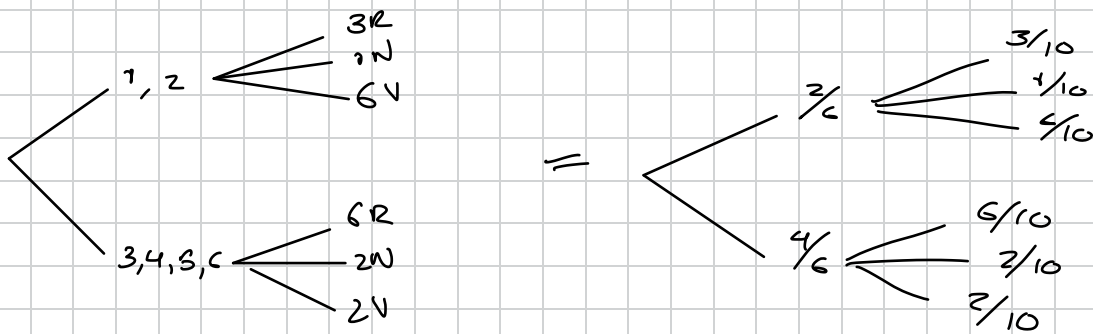
$$P(H) = \frac{185}{300} \cdot \frac{300}{1000} + \frac{415}{700} \cdot \frac{700}{1000} = \frac{600}{1000} = \frac{6}{10} = \frac{3}{5}$$

$$b) P(M) = 1 - P(H) = \frac{2}{5}$$

$$c) P(G) = \frac{P(H/G) + P(M/G)}{P(H)} = \frac{185 + 115}{1000} = \frac{300}{1000} = \frac{3}{10}$$

$$d) P(G/M) = \frac{P(G \cap M)}{P(M)} = \frac{\frac{115}{400}}{\frac{2}{5}} = \frac{575}{800} = \frac{115}{400} = \frac{23}{80}$$

2.



$$a) P(R) = P(R/U_1) + P(R/U_2)$$

$$P(R) = \left( \frac{2}{6} \cdot \frac{3}{10} \right) + \left( \frac{4}{6} \cdot \frac{6}{10} \right) = \frac{2}{10} + \frac{4}{10} = \frac{1}{2}$$

$$b) P(N) = P(N/U_1) + P(N/U_2)$$

$$P(N) = \left( \frac{2}{6} \cdot \frac{1}{10} \right) + \left( \frac{4}{6} \cdot \frac{2}{10} \right) = \frac{2}{60} + \frac{8}{60} = \frac{10}{60} = \frac{1}{6}$$

$$c) P(1/N) = \frac{P(N/U_1)}{P(N)} = \frac{\frac{2}{6} \cdot \frac{1}{10}}{\frac{1}{6}} = \frac{2}{10} = \frac{1}{5}$$

$$d) P(2/N) = 1 - P(1/N) = \frac{4}{5}$$

3.

$$\frac{3}{5} \cdot \frac{2}{4} = \frac{6}{20} = \frac{3}{10}$$

$$P(F_1) \cdot P(F_2) = P(F_1 \cap F_2) = \frac{3}{10}$$