

- Q<sub>1</sub>.
- a)  $H \cap C^c \cap S^c = H \cap (C \cup S)^c$
  - b)  $C \cap H \cap S^c$
  - c)  $H \cup C \cup S$
  - d)  $(H \cap C) \cup (H \cap S) \cup (C \cap S)$
  - e)  $H \cap C \cap S$
  - f)  $(H \cup C \cup S)^c$
  - g)  $[(H \cap C) \cup (H \cap S) \cup (C \cap S)]^c$
  - h)  $(H \cap C \cap S)^c$

Q<sub>2</sub>

Sample space =  $\{RR, RG, RB, GR, GG, GB, BR, BG, BB\}$   
 Probability of each point in sample space =  $1/9$

Q<sub>3</sub>. See .ipynb file.

Q<sub>4</sub>.

$$\frac{1}{2} : A \begin{cases} 1R : \frac{1}{2} \\ 1W : \frac{1}{2} \end{cases} \quad \frac{1}{2} : B \begin{cases} 2R : \frac{2}{3} \\ 1W : \frac{1}{3} \end{cases}$$

a)  $\frac{1}{2} \times \frac{1}{2} + \frac{1}{2} \times \frac{2}{3} = \frac{7}{12}$

b)  $P(A|W) = \frac{P(A \cap W)}{P(W)}$

$$= \frac{\frac{1}{2} \times \frac{1}{2}}{1 - P(R)}$$

$$= \frac{1}{4} \cdot \frac{12}{5} = \frac{3}{5}$$