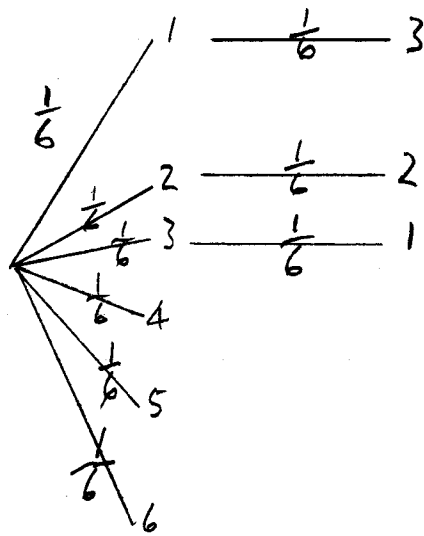


6) i)



$$\begin{aligned}
 P(\text{Final score 4}) &= \frac{1}{6} + \frac{1}{6} \times \frac{1}{6} + \frac{1}{6} \times \frac{1}{6} + \frac{1}{6} \times \frac{1}{6} \\
 &= \frac{9}{36} = \frac{1}{4}
 \end{aligned}$$

$$\begin{aligned}
 \text{ii) } P(\text{Final score 4} \mid \text{thrown once}) &= \frac{P(\text{Final score 4} \cap \text{thrown once})}{P(\text{thrown once})} \\
 &= \frac{\frac{1}{6}}{\frac{3}{6}} = \frac{1}{3}
 \end{aligned}$$

$$\begin{aligned}
 \text{iii) } P(\text{Final score 4} \mid \text{thrown twice}) &= \frac{P(\text{Final score 4} \cap \text{thrown twice})}{P(\text{thrown twice})} \\
 &= \frac{\frac{1}{6} \times \frac{1}{6} + \frac{1}{6} \times \frac{1}{6} + \frac{1}{6} \times \frac{1}{6}}{\frac{3}{6}} \\
 &= \frac{\frac{3}{36}}{\frac{1}{2}} = \frac{1}{6}
 \end{aligned}$$