Es. 1 reti

1. $P[X_3=T \mid X_2=T] = \dfrac{P[X_3=T, X_2=T]}{P[X_2=T]}$

$C_1 = \{$estratta moneta con 2 teste$\}$
$C_2 = \{$estratta moneta equa$\}$

$$P[X_3=T, X_2=T] = P[X_3=T, X_2=T \mid C_1] \cdot P[C_1] +$$
$$+ P[X_3=T, X_2=T \mid C_2] \cdot P[C_2]$$

$$= 1 \cdot \frac{1}{2} + \frac{1}{4} \cdot \frac{1}{2} = \frac{5}{8}$$

$$P[X_2=T] = P[X_2=T \mid C_1] \cdot P[C_1] + P[X_2=T \mid C_2] \cdot P[C_2]$$
$$= 1 \cdot \frac{1}{2} + \frac{1}{2} \cdot \frac{1}{2} = \frac{3}{4}$$

(*) $P[X_3=T \mid X_2=T] = \frac{5}{8} \cdot \frac{4}{3} = \frac{5}{6}$

2. $P[X_3=T \mid X_2=T, X_1=T] = \dfrac{P[X_3=T, X_2=T, X_1=T]}{P[X_2=T, X_1=T]}$

come sopra

$$P[X_3=T, X_2=T, X_1=T] = 1 \cdot \frac{1}{2} + \frac{1}{8} \cdot \frac{1}{2} = \frac{9}{16}$$

$$P[X_2=T, X_1=T] = 1 \cdot \frac{1}{2} + \frac{1}{4} \cdot \frac{1}{2} = \frac{5}{8}$$

(**) $P[X_3=T \mid X_2=T, X_1=T] = \frac{9}{16} \cdot \frac{8}{5} = \frac{9}{10}$

3. Non è una catena di Markov perché (*) è diverso da (**).