§6.1#38

(a) $P(E_1) = \frac{4}{8}$, $P(E_2) = \frac{4}{8}$. $P(E_1 \cap E_2) = \frac{2}{8} = \frac{1}{4}$, so they are independent

(b) $P(E_1) = \frac{4}{8}$, $P(E_2) = \frac{2}{8}$. $P(E_1 \cap E_2) = \frac{1}{8}$, so they are indpendendent

(c) $P(E_1) = \frac{4}{8}$, $P(E_2) = \frac{2}{8}$. $P(E_1 \cap E_2) = 0$, so they are not indpendent

§6.2#24
Let $E =$ "there are exactly four heads", $F =$ "the first is T".
Then $P(E|F) = \frac{P(E \cap F)}{P(F)} = \frac{1/2^5}{1/2} = \frac{1}{2^4} = \frac{1}{16}$