2. a) 2 fair coins.
   8 coins total.
   $\frac{2}{8} \rightarrow \boxed{\frac{1}{4} \text{ chance of fair coin.}}$

b) There is a $\frac{1}{2}$ chance the coin comes up heads.

c) P(F|R) - fair and TTH — P
   P(UT|R) - unfair tails favored & TTH
   P(UH|R) unfair heads favored & TTH
   P(F) - fair die chosen
   P(UT) - unfair tails favored die chosen
   P(UH) - unfair heads favored die chosen
   P(R) - roll was TTH
   $P(R) = P(R|F) \cdot P(F) + P(R|UT) \cdot P(UT) + P(R|UH) \cdot P(UH)$
   $= (.25 \cdot .25) + (.140625 \cdot .375) + (.046875 \cdot .375)$
   $= .1328125$

   $P(F|R) = P(R|F) \cdot \frac{P(F)}{P(R)} = .25 \cdot \frac{(1/4)}{.1328125} = .471$

   $\boxed{\text{The probability that the coin was fair given the flips TTH is .471.}}$

d) P(H) - probability of heads
   P(F) - probability of fair
   $P(H) = \frac{1}{2}$
   $P(H|F) = \frac{1}{2}$
   $\boxed{\text{Since P(H) and P(H|F) are equal, the events are independant.}}$