Flip coins until 1st head appears.
Event B be that flips 1 and 2 are both tails.
Event A be the event at least 6 flips are needed to get 1st heads.

Event A: T T T T T } 1st head

Event B: T T

$P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{1/32}{1/4} = \frac{1}{8}$

$P(A) = \frac{1}{32} \neq \frac{1}{8} = P(A|B)$
So A, B are dependent.

Another view: Given B

T T ? ? ? } need T's to get A (given B)

$P(A|B) = \frac{1}{8}$