605 - Discussion Wk 5

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What are the probabilities of the events:

$$\Omega = \{HHH, \quad HHT, \quad HTH, \quad THH, \quad THT, \quad TTH, \quad TTT\}$$

The sample space above contains the possible outcomes of throwing a coin three times. Where the probability of any of the outcomes happening is equal and with a value of 1/8.

(a) E = {HHH,HHT,HTH,HTT}.

P(E) = P({HHH,HHT,HTH,HTT}) = m(HHH) + m(HHT) + m(HTH) + m(HTT) = (1/8) + (1/8) + (1/8) + (1/8) = 4 x (1/8) = 1/2

(b) E = {HHH,TTT}.

P(E) = P({HHH,TTT}) = 2 x (1/8) = 1/4

(c) E = {HHT,HTH,THH}.

P(E) = P(HHT,HTH,THH) = 3 x (1/8) = 3/8

(d) E = {HHT,HTH,HTT,THH,THT,TTH,TTT}.

P(E) = P({HHT,HTH,HTT,THH,THT,TTH,TTT}) = 7 x (1/8) = 7/8