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A02052161

9. Complete the following homework assignment prior to Meeting #9:

A. Study our notes from Meeting #8 ; comprehend Jim's sample responses to the Quiz #9 prompts that are posted on *Canvas*.

B*. Staggerlee wants to conduct a coin-flipping experiment for the purpose of determining the probabilities of randomly obtaining various events when a fair coin is flipped exactly three times in succession. He plans to use the resulting probability distributions to hedge his bets in a variety of games of chance. Please design the experiment for him so that it yields probability values for the each of the following events: X_j is the event in which exactly j tails turn up for $j \in \{0, 1, 2, 3\}$. Describe the experiment – identifying the sample space and discrete probability distribution.

C. Compare your responses to the homework prompts to those Jim posted in *Canvas* on the usual page.

X_j = event in which exactly j tails turn up.

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

$X_0 = \{HHH\}$
$X_1 = \{HHT, HTH, THH\}$
$X_2 = \{HTT, THT, TTH\}$
$X_3 = \{TTT\}$

number of possible outcomes $= 8 = n$

$P(X_0) = \frac{|X_0|}{n} = \frac{1}{8}$

$P(X_1) = \quad " \quad = \frac{3}{8}$

$P(X_2) = \quad = \frac{3}{8}$

$P(X_3) = \quad = \frac{1}{8}$