

MH2500 Mini-Quiz

Question 1

Suppose that a biased coin that lands on heads with probability p is flipped 10 times. Given that a total of 6 heads results, find the conditional probability that the first 3 outcomes are

- (a) h, t, t (meaning that the first flip results in heads, the second in tails, and the third in tails);
- (b) t, h, t.

You may leave your answer uncomputed.

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Question 2

A fair coin is flipped until either heads or tails has occurred twice. Find the expected number of flips.

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Question 3

A sample of 3 items is selected at random from a box containing 20 items of which 4 are defective. Find the expected number of defective items in the sample. What is the minimum number of items you should select, to ensure you will get a defective item?