SOLUTION TO THE QUESTION FOR MATH 343 FOR THE LECTURE OF 7 MAY

Problem 1. You suspect that a particular coin is biased so as to come up tails more often than heads. You propose to test this suspicion by flipping the coin a (large) number of times, and counting the prooportion of tails among the flips. What are the null and alternative hypotheses?

Solution. Let p be the true probability that a single flip of the coin comes up tails. Then:

$$\mathrm{H}_0 \colon p = \frac{1}{2}.$$
$$\mathrm{H}_\mathrm{a} \colon p > \frac{1}{2}.$$

That is:

H_0: The coin is fair.

H_a: The coin is biased to come up tails more often than heads.

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