MA162: Finite mathematics

Jack Schmidt

University of Kentucky

April 13, 2010

Schedule:

- HW D1 is due Monday, Apr 19th, 2010.
- HW D2 is due Monday, Apr 26th, 2010.
- HW D3 is due Friday, Apr 30th, 2010.
- Final Exam is Thursday, May 6th, 6:00pm-8:00pm
- There will be an alternate signup sheet (for Friday, May 7th)

Today we will cover 7.1: Sample spaces

Probability

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- If you flip a coin 1000 times, it will be heads between 450 and 550 times (with a 99.9% probability).

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- For example, we might plan an experiment where we flip 10 coins and count how many heads show up.

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- If we pull one card from the deck, then our sample space can be the set of all 52 (or 54) cards in the deck.
- If we draw five cards from the deck and don't care about order, then there are $\frac{52}{5}\frac{51}{4}\frac{50}{3}\frac{49}{2}\frac{48}{1} = 2,598,960$ possible outcomes

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- $Mhtt = \{HHH, HHT, HTH, THH\}$ has four sample points in it

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- Not all events are mutually exclusive.
- For instance the event "get a head on the very first try!" is {HHH, HHT, HTH, HTT} and so the intersection with "more heads than tails" is {HHH, HHT, HTH}

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- 5. (STA291) After actually running the experiment, decide whether your probability calculation reflects reality
- 6. (STAxxx) Decide how many times to run the experiment before you can decide whether your probability calculation reflected reality

• We learned the words **experiment**, **sample space**, **event**, and **mutually exclusive**

• HWD1 will ask you to write out events; you can do HWD1 tonight

 HWD2 and HWD3 are due the same week, and finals are soon; do not delay

• Thursday we will cover 7.2: Probability