Ch 3.1/ Ch 3.2 Probability and Odds

Event: collection of results or outcomes of a procedure

Simple event: is an outcome or event that can't be broken into smaller components.

Ex) rolling one dice and getting a 5. Either it is or isn't 5.

Not simple) rolling two die and getting the sum of 7. roll a 3 and a 4 or 2 and a 5 or 1 and a 6.

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Sample space: consists of all possible simple events.

P(A)- represents the probability of an event (A) occuring.

If probability is less than or = to 5%, it is considered unlikely.

Probability can be found 3 ways:

1. formula Probability = $\frac{\text{\# times the event occurs}}{\text{sample space}}$
2. simply guessing (not effective)
3. Law of large- simulate the procedure.

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Get out your coin toss and dice activity worksheet.

What were your results for:

	Head	3:	4:	5:	6:
10:					
20:					
30:					
40:					
50:					

The more times you flip or roll, the closer you are suppose to be to the true probability.

Coin: 1/2 = 50% Dice : 1/6 = 17%

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Ex 1a) Find the probability of getting hit by lightning:

1. guess 2. simulate 3. calculate

Pull

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Ex 1b.) multiple choice exam with 5 choices:

P(guess correct)

P(guess wrong)

Ex 1C) 18 students own their own computer and 7 don't, what is the P(select a person who doesn't own a computer)?

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Ex 1d) What is the probability of a couple having 3 kids with 2 boys and 1 girl(order doesn't matter)?

Boy Girl

Child 1	Child 2	Child 3
Boy	Girl	Boy
Boy	Boy	Boy
Boy	Boy	Girl
Boy	Girl	Girl
Girl	Boy	Girl
Girl	Girl	Boy
Girl	Girl	Boy
Girl	Boy	Boy

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Ex 1e)

Probability of Thanksgiving falling on Wednesday?

Probability of it falling on Thursday?

Probability on any event is always between 0 or 1.

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Complementary Events: denoted as $\overline{A}$, which the event doesn't occur.

$$A + \overline{A} = 1$$

Ex2a) GMC tested new model cars. 50 drivers have been recruited, of which 20 are men.

P(not a man) or $P(\overline{man})$ = P(women)

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Ex 3) Odds = # times an event occurs / # times an event doesn't occur

Bag of marbles with 5 green, 2 red, and 7 blue

Ex3a) Odds(green)

Ex 3b) Odds(blue)

Ex 4c) Odds(~~red~~)

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