Ch 4.1 Discrete vs Continuous Probability

<u>Discrete Probability</u> - exact number of outcomes ex) # of aces in a deck of cards, # of students who are left handed, # kids absent today.....

<u>Continuous Probability</u> - infinitely many outcomes ex) time, height, weight, length..... measurable amounts are rounded

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Probability Distribution table - list of all the different number of outcomes and the probability for each outcome.

The probability of <u>all</u> the different number of outcomes for an an event = <u>1</u>.

Ex1) All the different outcomes for rolling a die.

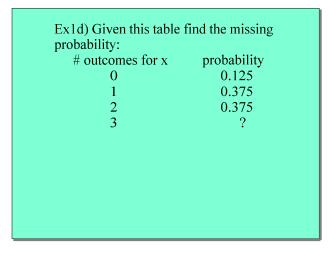
Probability

Probability

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Ex1b) List the number of tossing a coin. type of outcome heads tails	f outcomes for probability
Ex1c) Could this represent a probability distribution table? # of outcomes for x probability 0 1/19	
1	3/19 4/19
2 3	5/19
4	7/19

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Ex2) **Binomial distributions**- are when the variable of interest has 2 outcomes.

examples: pass or fail
heads or tails
true or false
boy or girl
correct or incorrect

*For the total number of outcomes do 2ⁿ, because there is always 2 outcomes for every given event.

Ex 2a) Make a binomial probability table to represent the number of boys a couple could have, if they have 3 children.

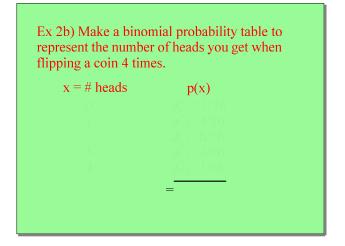
Binomial Distribution Tables - represent all

x = # boys p(x)

1
2
3

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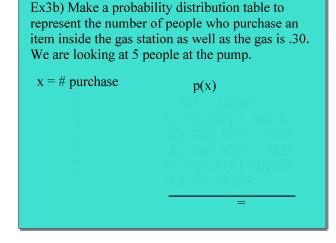
1



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Did you notice any patterns in the tables that could be used as good short cuts?

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Ex 2c) Make a binomial probability table to represent the number of correct answers you could get a 5 multiple choice.

 $x = \# \text{ correct} \qquad p(x)$ 0 $C_0 = 0.32$ 1 $C_1 = 5/32$ 2 $C_2 = 10/32$ 3 $C_3 = 10/32$ 4 $C_4 = 3/32$ 9 $C_4 = 1/32$

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Ex3) The probability for the event is given.

Ex3a) Make a probability distribution table to represent the number of students that pass the exam, if the probability of passing was 89% and were obly looking at 4 students.

* p(x) = take the # ways it can happen times p(happening).

x = # students passing p(x)

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Try:

Make a probability distribution table for 3 friends who are applying for jobs at company ABC. The probability they get the job is .85.

x = who gets a job p(x)

0

1

2

3

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