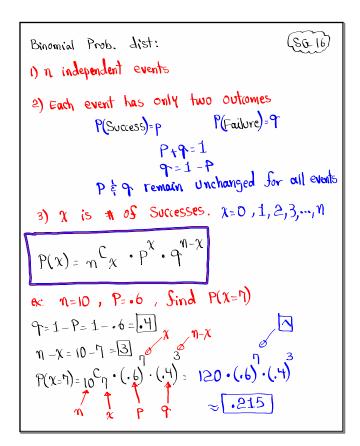
Statistics
Spring 2023
Lecture 28



Feb 19-8:47 AM

```
Class Q7 7
Given the chart below
                        1) find P(x=4)
    \chi | P(x)
                           =1-[.15+.25+.35]=1-.75=1.25
     1
        1.15
     2 \.25
                          a) find
      3 \ .35
                            u = 2.7
                             0=1.005 Round to 3-decimal
  2 + L1
 P(x) \rightarrow L2
                             0= 101 Reduced Fraction
  1 - Var Stats with LIEL2
                              VARS [5: Statistics H: Ox
                              x2 MATH 1: Afrac Enter
```

Mar 28-7:05 AM



Mar 28-7:37 AM

Consider a binomial Prob. dist. with
$$M=20$$

and $P=.5$. Find $P(X=12)$
 $9:1-P=1-.5=.5$
 $1-x=20-12=8$
 $P(x)=n^{2}x\cdot p^{2}\cdot q^{2}-x$
 $P(x)=120=20^{2}\cdot 12\cdot (.5)\cdot (.5)$
 $P(x=12)=20^{2}\cdot 12\cdot (.5)\cdot (.5)$
 $P(x=12)=20^{2}\cdot 12\cdot (.5)\cdot (.5)$
 $P(x=12)=20^{2}\cdot 12\cdot (.5)\cdot (.5)$

```
You are taking a multiple-choice exam with

25 questions and making random guesses.

Each question has H choices but only one

Correct choice.

M = 25, P = 1/4 = .25

Find P(guessing exactly 10 correct answers)

P(x) = nCx. Pr. 9n-x x n-x

P(x=10) = 25C10 (.25) (.15) = .042

Now using TI Command

2nd VARS J. J. Linompds

Your work

P: .25

Your work

P: .25

P(x=10) = binompds (25, .25, 10) x value: 10

Paste Enter

1.042

No Menu M, P, X

Binompds (25, .25, 10) enter
```

Mar 28-7:49 AM

```
You Slip a Sair Coin 100 times.

Suppose landing tails is a success.

M = 100 P = .5 P = .5

P(\text{lands exactly 60 tails}) = n P X

P(X = 60) = \text{binompdf}(100, .5, 60) = .011

P(\text{lands at most 60 tails}) = 0

P(X \le 60) = \text{binomcdf}(100, .5, 60) = .982

P(X \le 60) = \text{binomcdf}(100, .5, 60) = .982

P(\text{lands Gewer than 60 tails}) = 0

P(\text{lands Gewer than 60 tails}) = 0
```

Mar 28-7:59 AM

```
A loaded Coin is tossed 100 times.
Success is to land tails.
          P(tail) = . 6 per toss.
Suppose
           P=.6 9=.4
 n= 100
P(exactly 60 tails) = P(x=60)
                    = binompds(100, .6,60)
                     180.
 P(at most 10 tails) = P(2510)
                     = binomcalf (100, .6, 70)
                      .985
 P(at least 70 tails) = P( 2>70)
                          = 1 - P(\chi \leq 69)
                           Total Prob. 1
          69 70 WMT
                        =1-binomcd$(100,.6,69)
                         = [.025]
```

Mar 28-8:08 AM

```
You are making random guesses on every question
on a multiple-choice exam with [100 questions]
each question has 5 choices with only
one correct choice.
                 P = \frac{1}{5} = .2 9 = \frac{4}{5} = .8
   n=100
P( exactly 25 correct Ans.):
 P(x = 25) = binom pdf(100, .2, 25) = 6.044
P( less than 25 correct Ans.)=
 P(\chi \leq 25) = P(\chi \leq 24) = binomed (100, .2, 24)
P(more than 25 Correct ans.) = Total Prob,
P(x > 25) = P(x \ge 36) = 1 - P(x \le 25)
  we don't we want
          25 26
                         =1-binomcdf(100,.2,25)
Quiz tomorrow
on expected Value at start of class
                          =1.0877
```

Mar 28-8:17 AM