Lab 1 note (Thursday 9/10/20) What is the probability of seeing a sum of 7 when rolling 2 fair dice? $S = \{(1,1), (1,2), (1,3), \dots, (6,6)\}$ 36 sample points $A = \{ (1,6), (6,1), (2,5), (5,2), (3,4) \}$ 1A1= 6 1S1= 36 $P(A) = \frac{6}{30} = \frac{1}{6}$ 4 rolls

2 rolls

mo. rolls 1 st experiment 3,2,6,8,7 2 nd experiment 10,11,7 100,000 th exp.

What is the probability of seeing sum of I after exactly 3 rolls?

1 noll: $\frac{1}{6} = 0.167 \Rightarrow \text{ned 0 roll before it}$

2 rolls: $\frac{5}{6} \times \frac{1}{6} = 0.139 \rightarrow \text{need 1 roll before it}$

3 rolls: $\frac{5}{6} \times \frac{5}{6} \times \frac{1}{6} = 0.1158$ 1 st noll, $\frac{1}{6}$ roll, $\frac{5}{6}$ and $\frac{5}{8}$ and $\frac{5}{8}$ and $\frac{5}{8}$

rolls:

100,000 0 rolls -) 16,700 1 roll 13,500

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Counni, 1 2 3
                                160
       a, a2 a3 a4.... a100
         1 1 1 1
         2 × 2 × 2 × 2 × - · · · × 2
  Total posible outcomes: 2
Outcomes that has 35 heads:
      ((100, 35)
Prob. of seeing 35 Reads when tossing \frac{(100,35)}{200} = 8.63 \times 10^{-4}
Method 2: binomial distribution
      C(n, x) \times p^{x} \times q^{(n-x)}
 n: 100

x: 35 \Rightarrow C(100, 35) \times \left(\frac{1}{2}\right)^{35} \times \left(\frac{1}{2}\right)^{65}
 P: \frac{1}{2} = 8.63 \times 10^{-4}
  9:1/2
      random. randint (0,1)
 1 st experiment:
    0,1,0,0,1....1
2, 1, 1, 1, 1, 1
   coins wind 3 H
    Is you're 35 heads -> county1
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2 nd experiment 0,0,1... Count/ N (total experi -) -cands perher draw 4 Ones 4 Twos different kinds 4 Threes (1,2,3...,13)i kings $C(13,1) \times ((4,4)) ((48,2)$ 4 cards
2 cards C(52,6)

- 0.0007.

 $((13,1) \times ((4,4) \times ((4),1))$ (52,5) 5-card poher drow {1,2,3,4} -> { Diamond Ax, Club Ax {5,6,78} -> { Diamond two, Club two {49,50,51,52} -> { Diamond King, club ling Creating a set of 6 random number in [1,52] 1, 5, 10, 12, 17, 18 if in same kind -> count + 1 count/11