

1. Gender Selection: In a study of the Micro Sort gender-selection method, couples in a control group are not given a treatment, and they each have three children. The probability distribution for the number of girls in the accompanying table

x	$P(x)$
0	0.125
1	0.375
2	0.375
3	0.125

2. Life Insurance: The Te lektronic Company provides life insurance policies for its top four executives, and the random variable x is the number of those employees who live through the next year

x	$P(x)$
0	0.0000
1	0.0001
2	0.0006
3	0.0387
4	0.9606

3. Determine whether Gender-Selection Technique is Effective Assume that in a test of a gender-selection technique, a clinical trial results in 12 girls in 14 births. Refer to table 4-1 and find the indicated probabilities
- Find the probability of exactly 12 girls in 14 birth
 - Find the probability of 12 or more girls in 14 birth
 - Which probability is relevant for determining whether 12 girls in 14 births is unusually high: the result from part (a) or part (b)
 - Does 12 girls in 14 births suggests that the gender-selection technique is effective why or why not?

Table

x (girls)	$P(x)$
0	0.000
1	0.001
2	0.006
3	0.022
4	0.061
5	0.122
6	0.183
7	0.209
8	0.183
9	0.122
10	0.061
11	0.022
12	0.006
13	0.001
14	0.000

4. Rolling a loaded die 50 times and finding the number of times that 5 occurs
[Determine whether the given procedure results in a binomial distribution. For those that are not binomial, identify at least one requirement that is not satisfied]
- 5.

5. $n = 7, x = 2, p = 0.01$
[Assume that a procedure yields a binomial distribution with a trial repeated n times. Use Table B-1 to find the probability of x successes given the probability p of success on a given trial]

x	$P(x)$
0	0.410
1	0.410
2	0.154
3	0.026
4	0.002

BINomial probability distribution for
 $n = 4$ and $p = 0.2$

6. $n = 6, x = 2, p = 0.45$

[assume that a procedure yields a binomial distribution with a trial repeated n times, Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial

x	$P(X=x)$
0.00	0.0005
1.00	0.0071
2.00	0.0462
3.00	0.1607
4.00	0.3145
5.00	0.3283
6.00	0.1428

Binomial with $n = 6$ and $p = 0.723000$

7. Please listen to or read several weather forecasts for this week. How are statistics used to forecast weather? How accurate are weather forecasts? What are some of the elements of the weather that are tracked or measured?

State your source and share with the class any observations with respect to the proper or improper use of statistics principles / fundamentals. For example: was the sampling biased, in sufficient numbers, random selection, etc...? Are there shortcomings or is the use of statistics meaningful and effective.