**Problem Statement**

1. As voters exit the polls, you ask a representative random sample of 6 voters if they voted for proposition 100. If the true percentage of voters who vote for the proposition is 55.1%, what is the probability that, *in your sample,* exactly 2 voted for the proposition and 4 did not?

|  |  |
| --- | --- |
| Binomial Probability Formula | b(*x*; *n, P*) = nCx \* Px \* (1 - P)n – x |
| b = Binomial Probability |  |
| n = number of Trials | 6 |
| x = total number of success | 2 |
| P=Probability of success in one trial | 0.551 |
| (1-P) = Probability of failure in one trial | 0.449 |
|  |  |
| **nCx** | **(n! / ( x! (n - x)! ))** |
| n! | 6! |
| X! | 2! |
| (n - x)! | (6-2)! = 4! |
|  |  |
| **nCx** | 15 |
|  |  |
| Binomial Probability | 0.185088664 |
| Binomial Probability in percentage | 18.50886641 |

2. Professor Willoughby is marking a test.

Here are the students’ results (out of 60 points):

20, 15, 26, 32, 18, 28, 35, 14, 26, 22, 17

Most students didn't even get 30 out of 60, and most will fail.

The test must have been really hard, so the Prof decides to standardize all the scores and only fail people 1 standard deviation below the mean. So who will fail?

ANS

Here

Mean is 23

Standard deviation is 6.9

According to standard scores

Only 2 students will fail the test with score of 15 & 14