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## 10. Exercise: Polling

Exercises due May 1, 2020 05:29 IST **Completed**

### Exercise: Polling

4/4 points (graded)

We saw that if we want to have a probability of at least 95% that the poll results are within 1 percentage point of the truth, Chebyshev's inequality recommends a sample size of  $n = 50,000$ . This is very large compared to what is done in practice. Newspaper polls use smaller sample sizes for various reasons. For each of the following, decide whether it is a valid reason.

In the real world,

a) the accuracy requirements are looser.

Yes ☐ Answer: Yes

b) the Chebyshev bound is too conservative.

Yes ☐ Answer: Yes

c) the people sampled are all different, so their answers are not identically distributed.

No ☐ Answer: No

d) the people sampled do not have independent opinions.

No ☐ Answer: No

**Solution:**



a) Requiring the accuracy to be within one percentage point is too strict for most real world situations.

b) The Chebyshev bound is conservative as stated in the video.

c,d) No matter how opinions get formed, as long as we choose who to ask at random, independently and uniformly, the opinions reported will be i.i.d. random variables, so that the last two considerations do not apply.

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You have used 1 of 1 attempt

**i** Answers are displayed within the problem

## Discussion

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Inequalities, convergence, and the Weak Law of Large Numbers / 10.  
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What does it means "the Chebyshev bound is too conservative." ?

5

English is not my mothertongue... I don't know how to interpret this phrase...

Why identically distributed ?

6

I am not sure what "identically distributed" means in terms of the opinions we asked from people. I gues...

The options need to be True/False, not Yes/No.

1

Because "Yes" could mean an affirmative sentence, that is "Yes, their answers ARE identically distributed..."

Strange questions

2

Find this quite a strange set of questions - answers are subjective, as far as I'm concerned

I think d) is not correct, given the premise.

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The question starts with the premise "In the real world", then it implies that (in the real world), one must...

Doubt about what I should answer.

1

Should I answer whether each of the statements is correct, in the real world? Or I should rather assume ...

I think the question should specify that the people are sampled at random

1

As title

[STAFF] a) is not correct question



It is ambiguous, the accuracy requirements can be looser or no, this is not the mathematical case, and e...

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