



Statistics

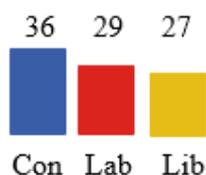
Exercises 12

You can use Excel to solve these exercises.

In Exercise 2a), refer to last weeks exercises.

1. The following headline about the UK elections comes from the Daily Telegraph of 1st May 2010.

Conservatives rise 3 points in comparison to last week.



Supposing that these results come from a sample of 100 people, is there any evidence at a 5% significance level that the true proportion of Labour and Liberal voters combined would allow them to form a government (i.e. is > 50%)?

2. The following comes from an opinion poll in Andalusia (EGOPA), for winter 2015:

Knowledge about and valuation of political leaders.

Susana Diaz is the most well-known Andalusian political leader, being identified by 86.3% of Andalusians. She is followed by Juan Manuel Moreno Bonilla with 45.6% and Antonio Maíllo with 36%. A long way behind is Antonio Jesús Ruiz who is recognised by only 7% of the population. The leader of UPyD, Martín de la Herrán Sabick (4.4%) along with the leader of EQUO, Esteban de Manuel (3.4%) are the least recognized. The Andalusians give a fail grade to most of their political leaders, with the exception of Susana Díaz who receives a mean grade of 5 out of 10. She is followed by the leader of IU, Antonio Maíllo, with 3.9 out of 10 and Martín de la Herrán Sabick who gets 3.8. Juan Manuel Moreno and Estéban de Manuel obtain ratings of 3.7 on average and in last place is the leader of PA, Antonio Jesús Ruiz, with only 3.4.

¿Do you know who occupies the presidency of Andalusia?

	Frequency	Percentage
Yes	1036	86,3
No	164	13,7
Total	1200	100,0

Mean rating of the President of Andalusia

N	Mean	Standard deviation
997	5	2,608

- a) Is there any evidence at a 5% significance level that the true proportion of Andalusians who know that Susana Diaz is the president of Andalusia is different from 75%?
- b) In the summer of 2014, Susana Diaz obtained her maximum mean rating as President of Andalusia with 5.4. Carry out a hypothesis test (at a 5% significance level) to see if there is any evidence that her true mean rating is lower now.

3. The following article appeared in the Sun on 5th April 2012.

David Cameron's rating at new low



Results ... of YouGov poll for The Sun Published: 05th April 2012

PUBLIC confidence in David Cameron's premiership has hit an all-time low, a YouGov poll for The Sun reveals today.

Only 30 per cent said he would "make the best PM" — the lowest figure since he entered No 10. His rating has dived EIGHT points in a fortnight, after rows over donors, fuel, pasties and the Budget.

But Labour leader Ed Miliband has failed to take advantage. Only 19 per cent said he would make the best PM, up just one point in the last two weeks. Only five per cent thought Nick Clegg would be the best PM, down one point.

Forty-six per cent said they "don't know" who would make the best PM — the highest figure since May 2010.

Labour is on 42 per cent — 10 points ahead of the Tories. The Lib Dems are on 9 per cent, just one point ahead of the UK Independence Party.

The data are based on a YouGov poll of 1783 UK adults.

In the survey, Labour is supported by 42% of the respondents, but this is a long way short of the 50% required for a stable majority. Is there any evidence that the true proportion of Labour voters is below 50%. Perform the test at a 99% significance level.