

## Research Methods 2: end of course test

1.

*Which of the following applies to the standard error of the mean*

- a) It gets smaller as the sample size gets larger
- b) It is a measure of the spread of the data
- c) It is used in the construction of a confidence interval for the mean
- d) It is Normally distributed

2.

The median is

- a) a measure of location
- b) useful only when the data are symmetrically distributed
- c) readily affected by changes to just one or two outlying values
- d) always bigger than the mean

3.

You wish to plan a study having 80% power for a hypothesis test at the 5% significance level. The outcome variable has a Normal distribution. What two things do you need to specify in order to be able to calculate a sample size?

1.	2.
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4.

For binary variables

- a) The standard error of the sample proportion depends on the sample size

- b) The standard error of the sample proportion depends on the value of the population proportion
- c) Two groups with this form of variable can be compared using a  $t$ -test.
- d) The width of a confidence interval will tend to become larger as the sample size gets larger

5.

An analysis of the heights of two groups of boys included an assessment of the equality of the population means of the two groups.

A sensible test for doing this is:

The result of the test is a P-value of 0.42.

What precisely does this mean?

6. Which of the following is true and which is false?

- a) A hypothesis test cannot prove the null hypothesis to be true
- b) The power of a  $t$ -test depends on the true difference between the means
- c) A P-value of 0.02 gives hardly any evidence against the null hypothesis
- d) In the unpaired  $t$ -test no assumptions are made about the spread of the data.

7. Which of the following is true or false

- a) Survival curves can increase in value as the time increases

- b) All survival curves have value 1 at time 0
- c) The null hypothesis that population survival curves are the same in two groups can be tested by the log-rank test
- d) A censored observation is one whose value is completely unknown to you

8.

The population survival curve can be estimated from a sample by using which estimator