

Question 30

A researcher hypothesizes that the outcome of an experiment has a probability 0.5 of being successful. However, in six independent repetitions of the experiment no successes were observed. Conduct a test to investigate the hypothesis and state your conclusion.

[4]

Test against $B(6, 0.5)$

$$= 2 \times 0.5^6 = 0.03125$$

Reasonable degree of doubt

Question 31

In a few sentences, give one example of a context where a one-sided hypothesis test is appropriate and one example where a two-sided test is appropriate.

[2]

advertising claim eg cost of insurance

Question 32

A common way of measuring the effect of a treatment is to measure each individual before and after the treatment. If such before and after measures have been taken on each of 20 individuals, what would be the appropriate t -distribution in a t -test of the hypothesis of no change?

[1]

$t(19)$