

AQA – Chi squared test for association – A2 Further Mathematics Statistics**1. June/2021/Paper_7367/3S/No.6**

Danai is investigating the number of speeding offences in different towns in a country.

She carries out a hypothesis test to test for association between town and number of speeding offences per year.

(a) State the hypotheses for this test.

[1 mark]

(b) The observed frequencies, O , have been collected and the expected frequencies, E , have been calculated in an $n \times m$ contingency table, where $n > 3$ and $m > 3$

One of the values of E is less than 5

(b) (i) Explain what steps Danai should take before calculating the test statistic.

[2 marks]

(b) (ii) State an expression for the test statistic Danai should calculate.

[1 mark]

(c) Danai correctly calculates the value of the test statistic to be 45.22

The number of degrees of freedom for the test is 25

Determine the outcome of Danai's test, using the 1% level of significance.

[3 marks]