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QUESTION WORKBOOK

# Testing a correlation coefficient

Further Statistics 2 · Year FM

6 questions · 20 marks

PRINT EDITION

**SECTION A** · Warm-up

- A1** Write down the hypotheses for a one-tailed test of positive product moment correlation, and say why  $r$  must not appear in them. [2]

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- A2** A sample of 12 pairs gives  $r = 0.62$ . The 5% one-tailed critical value is 0.4973. Carry out the test. [3]

**SECTION B** · Standard

- B1** A sample of 8 pairs gives  $r = 0.65$ . Test at the 5% level whether there is any correlation, given that the critical value for 2.5% in one tail with  $n = 8$  is 0.7067. [4]

- B2** Ten judges' rankings give  $r_s = 0.62$ . The 5% one-tailed Spearman critical value for  $n = 10$  is 0.5636. Test for positive agreement and state the advantage of this test over the product moment one. [4]

- B3** State the condition the product moment test requires of the data, and what should be said about it in an answer. [3]

### SECTION C · Stretch

- C1** A coefficient of  $r = 0.35$  is obtained. The 5% one-tailed critical values are 0.5494 for  $n = 10$  and 0.3061 for  $n = 30$ . Explain what this shows about interpreting a coefficient on its own. [4]