Section 2: Testing for correlation

Exercise level 2

1. A random sample of 18 pairs of bivariate data (x, y) produce a product moment correlation coefficient of 0.42.
   Testing for the significance of positive correlation in the population at the 5% level:
   Write down the critical value and the acceptance region.
   Stating your hypotheses clearly, test at the 5% significance level whether there is positive correlation between x and y.

2. A random sample of 15 pairs of bivariate data (x, y) produce a product moment correlation coefficient of -0.6.
   Testing for the significance of any correlation in the population at the 1% level:
   Write down the critical region.
   Stating your hypotheses clearly, test at the 1% significance level whether there is any correlation between x and y.

3. A random sample of 50 pairs of bivariate data (x, y) produce a product moment correlation coefficient of -0.3. This gives a 1-tail value p-value of 0.0171.
   What is the 2-tail p-value?
   Stating your hypotheses clearly, test at the 5% significance level whether there is negative correlation between x and y within the parent population from which the values are drawn.

4. A random sample of 25 pairs of bivariate data (x, y) are taken. The product moment correlation coefficient is 0.48. Stating your hypotheses clearly, test at the 1% significance level whether there is positive correlation between x and y.