Hypothesis Test for the SRCC

1. Rainfall, xcm, and hours of sunshine, y, on nine randomly selected October days is shown in the table below

x	1.3	3.8	4.2	2.6	2.1	2.6	5.3	0.0	0.9
y	1.5	0.3	0.0	4.2	3.6	0.5	0.0	6.2	1.4

Investigate whether days with high rainfall tend to have few hours of sunshine.

2. The following table shows the percentage of part-time staff employed by nine supermarkets in a large city and their rankings in terms of weekly takings

Part-time staff %	45	56	38	29	54	33	36	33	22
Weekly takings, rank	7	4	5	9	2	8	1	3	6

   a. Why is it not possible to calculate a value of PMCC for this data?
   b. Test the hypothesis that there is no relationship between the percentage of part-time staff employed and the weekly takings

3. The five finalists in a piano competition were placed in the following order by the judges

	1st	2nd	3rd	4th	5th
Judge 1	C	E	D	A	B
Judge 2	B	C	A	D	E

   a. Explain why SRCC is the most appropriate correlation coefficient to calculate for these results
   b. Stating the null and alternative hypothesis, test for an inverse association between the opinions of the judges.

4. The reading age of a random sample of eight children entering secondary school was recorded. During their first weeks their English teacher asked them to write a poem. The reading ages and the ranks of the poems, as judged by the English teacher, are shown in the following table.

Reading Age	8.7	11.2	14.4	6.8	12.3	13.1	9.6	10.8
Rank of Poem	7	4	3	8	1	6	5	2

   a. Is it more appropriate to calculate the PMCC or SRCC for this data? Explain your answer
   b. Test, at the 1% level of significance, for an association between the reading age of a student and their ability to write poetry.