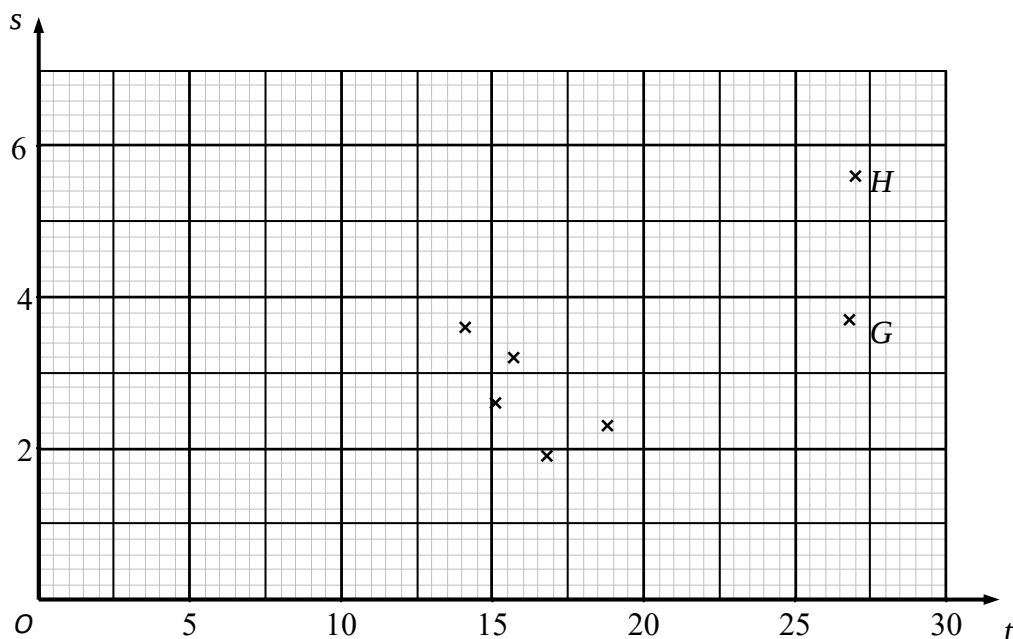


2. A researcher believes that there is a linear relationship between daily mean temperature and daily total rainfall. The 7 places in the northern hemisphere from the large data set are used. The mean of the daily mean temperatures, t °C, and the mean of the daily total rainfall, s mm, for the month of July in 2015 are shown on the scatter diagram below.



- (a) With reference to the scatter diagram, explain why a linear regression model may not be suitable for the relationship between t and s .

(1)

The researcher calculated the product moment correlation coefficient for the 7 places and obtained $r = 0.658$.

- (b) Stating your hypotheses clearly, test at the 10% level of significance, whether or not the product moment correlation coefficient for the population is greater than zero.

(3)

- (c) Using your knowledge of the large data set, suggest the names of the 2 places labelled G and H .

(1)

- (d) Using your knowledge from the large data set, and with reference to the locations of the two places labelled G and H , give a reason why these places have the highest temperatures in July.

(2)

- (e) Suggest how you could make better use of the large data set to investigate the relationship between daily mean temperature and daily total rainfall.

(1)

(Total 7 marks)