11 The pre-release material contains data concerning the death rate per thousand people and the birth rate per thousand people in all the countries of the world. The diagram in Fig. 11.1 was generated using a spreadsheet and summarises the birth rates for all the countries in Africa.
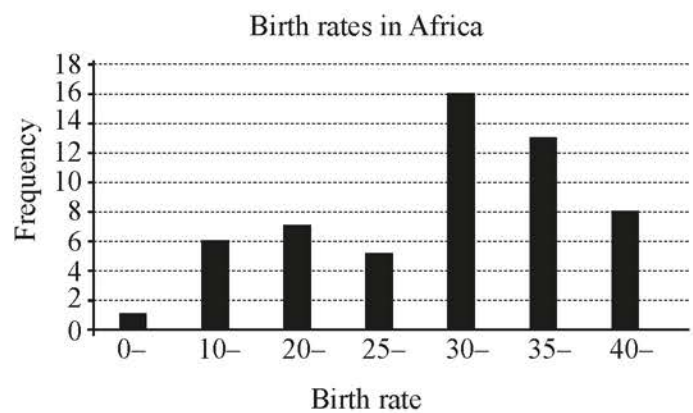
Birth rates in Africa

Fig. 11.1

(i) Identify **two** respects in which the presentation of the data is incorrect. **[2]**

Fig. 11.2 shows a scatter diagram of death rate, y, against birth rate, x, for a sample of 55 countries, all of which are in Africa. A line of best fit has also been drawn.
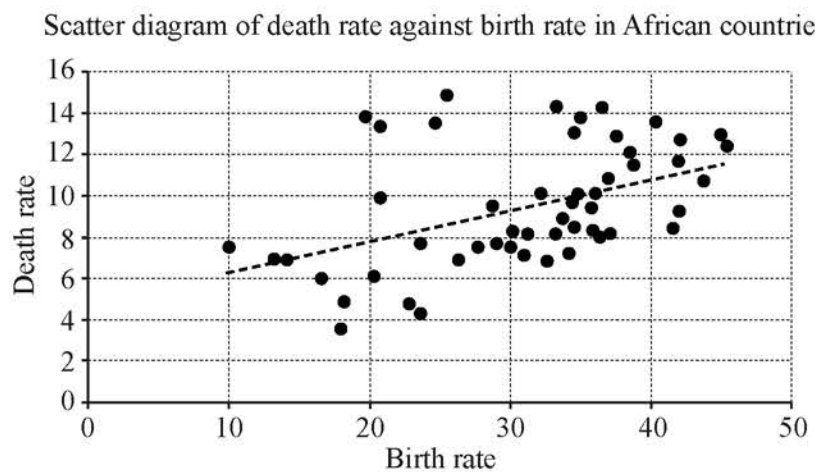
Scatter diagram of death rate against birth rate in African countries

Fig. 11.2

The equation of the line of best fit is $y = 0.15x + 4.72$.

(ii) *(A)* What does the diagram suggest about the relationship between death rate and birth rate? **[1]**

(B) The birth rate in Togo is recorded as 34.13 per thousand, but the data on death rate has been lost. Use the equation of the line of best fit to estimate the death rate in Togo. **[1]**

(C) Explain why it would not be sensible to use the equation of the line of best fit to estimate the death rate in a country where the birth rate is 5.5 per thousand. **[1]**

(D) Explain why it would not be sensible to use the equation of the line of best fit to estimate the death rate in a Caribbean country where the birth rate is known. **[1]**

(E) Explain why it is unlikely that the sample is random. **[1]**

Including Togo there were 56 items available for selection.

(iii) Describe how a sample of size 14 from this data could be generated for further analysis using systematic sampling. **[2]**