6 The large data set gives information about life expectancy at birth for males and females in different London boroughs. Fig. 6.1 shows summary statistics for female life expectancy at birth for the years 2012–2014. Fig. 6.2 shows summary statistics for male life expectancy at birth for the years 2012–2014.

Female Life Expectancy at Birth

n	32
Mean	84.2313
s	1.1563
Σx	2695.4
Σx^2	227078.36
Min	82.1
Q1	83.45
Median	84
Q3	84.9
Max	86.7

Fig. 6.1

Male Life Expectancy at Birth

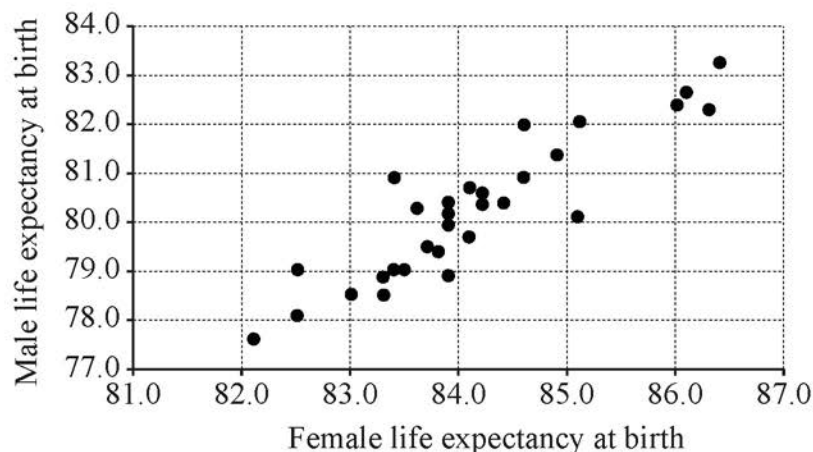| n	32
Mean	80.2844
s	1.4294
Σx	2569.1
Σx^2	206321.93
Min	77.6
Q1	79
Median	80.25
Q3	81.15
Max	83.3

Fig. 6.2

(a) Use the information in Fig. 6.1 and Fig. 6.2 to draw two box plots. Draw one box plot for female life expectancy at birth in London boroughs and one box plot for male life expectancy at birth in London boroughs. **[5]**

(b) Compare and contrast the distribution of male life expectancy at birth with the distribution of female life expectancy at birth in London boroughs in 2012–2014. **[2]**

Lorraine, who lives in Lancashire, says she wishes her daughter (who was born in 2013) had been born in the London borough of Barnet, because her daughter would have had a higher life expectancy.

(c) Give **two** reasons why there is no evidence in the large data set to support Lorraine's comment. **[2]**

(d) Use the mean and standard deviation for the summary statistics given in Fig. 6.1 and Fig. 6.2 to show that there is at least one outlier in each set. **[2]**

The scatter diagram in Fig. 6.3 shows male life expectancy at birth plotted against female life expectancy at birth for London boroughs in 2012–14. The outliers have been removed.

Male life expectancy at birth against female life expectancy at birth

Fig. 6.3

(e) Describe the association between male life expectancy at birth and female life expectancy at birth in London boroughs in 2012–14. **[2]**