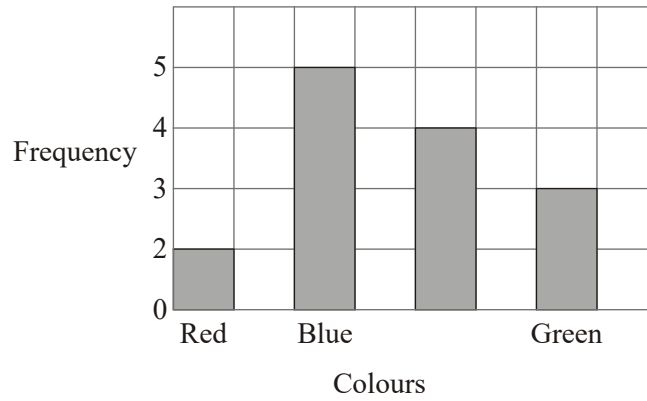1.   Ray and Clare are pupils at different schools.
      They each did an investigation into their teachers' favourite colours.

      Here is Ray's bar chart of his teachers' favourite colours.

      (a)   Write down two things that are wrong with Ray's bar chart.

             ....

             ....

                                                                                                                  (2)
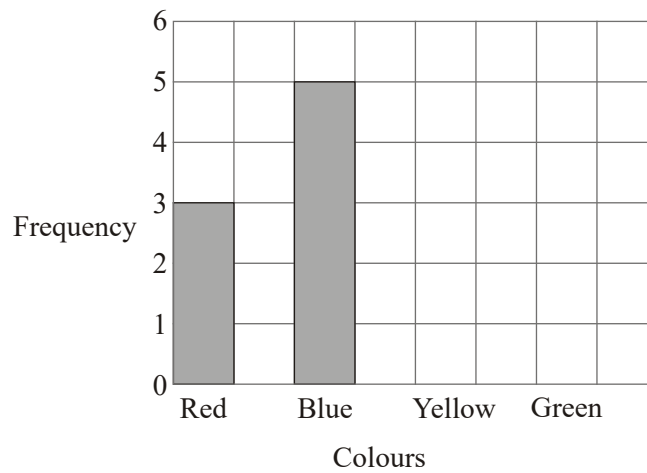
      Clare drew a bar chart of her teachers' favourite colours.

      Part of her bar chart is shown below.

4 teachers said that Yellow was their favourite colour.
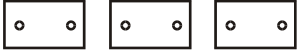2 teachers said that Green was their favourite colour.

(b)   Complete Clare's bar chart.

(2)

(c)   Which colour was the mode for the teachers that Clare asked?

....

(1)

(d)   Work out the number of teachers Clare asked.

....

(1)

(e)   Write down the fraction of the number of teachers that Clare asked who said Red was their favourite colour.

....

(1)
(Total 7 marks)

2.   The pictogram shows the number of videos borrowed from a shop on Monday and on Tuesday.

Monday	□ □ □
Tuesday	□ □ □
Wednesday	
Thursday	

Represents 10 videos

(a)   Write down the number of videos borrowed on

    (i)   Monday, ...

    (ii)   Tuesday.   ....

(2)

On Wednesday, 40 videos were borrowed.
On Thursday, 15 videos were borrowed.

(b)   Show this information on the pictogram.

(2)
(Total 4 marks)

3.   Some bulbs were planted in October.

The ticks in the table show the months in which each type of bulb grows into flowers.

		Month					
		Jan	Feb	March	April	May	June
	Allium					✓	✓
Type	Crocus	✓	✓				
of	Daffodil		✓	✓	✓		
bulb	Iris	✓	✓				
	Tulip				✓	✓	

(a)   In which months do tulips flower?

…………………………………………………………………………………………

(1)

(b)   Which type of bulb flowers in March?

……………………..

(1)

(c)   In which month do most types of bulb flower?

……………………..

(1)

(d)   Which type of bulb flowers in the same months as the iris?
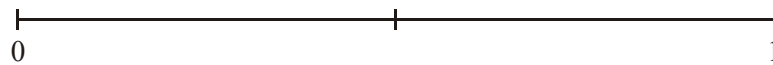
……………………..

(1)

Ben puts one of each type of these bulbs in a bag.

He takes a bulb from the bag without looking.

(e)   (i)   Write down the probability that he will take a crocus bulb.

……………………..

        (ii)   On the probability scale, mark with a cross (×) the probability that he will take a
                bulb which flowers in February.

```
├──────────────────────┼──────────────────────┤
0                                              1
```

(2)

(Total 6 marks)

4.   (a)   Write the number 5067 in words.

....

(1)

(b)   Write the number 1392 to the nearest hundred.

……………………….

(1)

(Total 2 marks)

5.   The table shows the distances in kilometres between some cities in the USA.

Boston

1589	Chicago				
4891	3366	Los Angeles			
2474	2184	4373	Miami		
342	1352	4539	2133	New York	
5067	3493	667	4990	4826	San Francisco

(a)   Write down the distance between Los Angeles and New York.

………………………….km

(1)

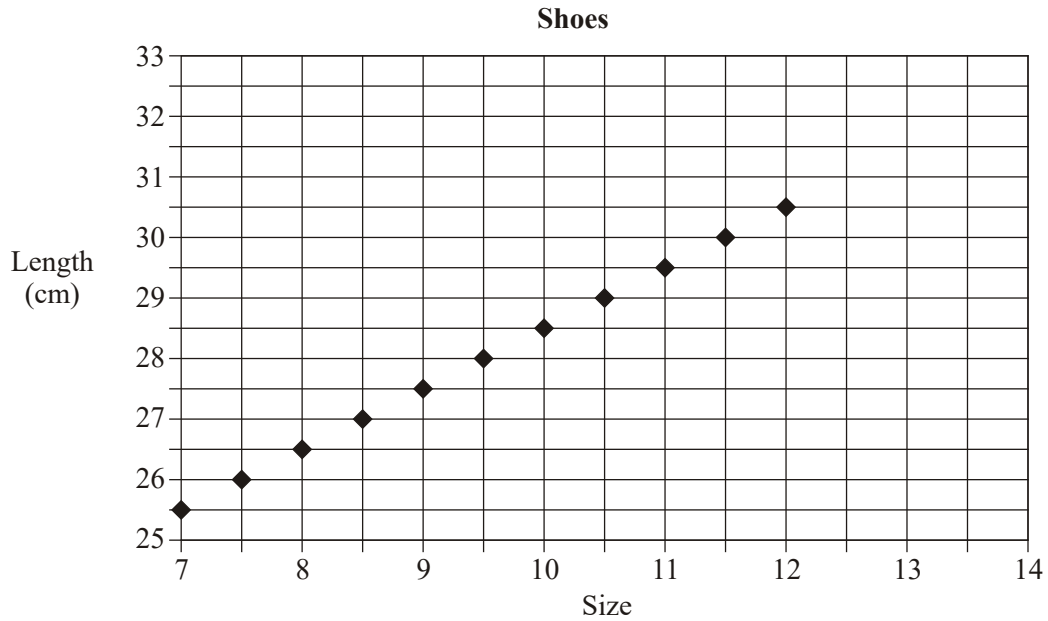One of the cities in the table is 2184 km from Miami.

(b)   Write down the name of this city.

……………………….

(1)

(c)   Write down the name of the city which is furthest from San Francisco.

……………………….

(1)
(Total 3 marks)

6.   Each point on the graph represents the size of a shoe and its length, in cm.

Shoes

(a)   Write down the length of a size 9 shoe.

…………………………cm

(1)

(b)   Write down the size of a shoe with a length of 29.5 cm.

………………………

(1)

(Total 2 marks)

7.   Here is part of a railway timetable.

Manchester	05 15	06 06	06 45	07 05	07 15	07 45
Stockport	05 26	06 16	06 55	07 15	07 25	07 55
Macclesfield	05 39	06 29	07 08		07 38	08 08
Stoke-on-Trent	05 54	06 45	07 24		07 54	08 24
Stafford	06 12		07 41		08 11	
London Euston	08 07	08 26	09 06	09 11	09 50	10 08

A train leaves Manchester at 06 45

(a)   (i)   At what time should this train get to London Euston?

....

        (ii)   How long should it take to travel between Manchester and Stoke-on-Trent?

.... minutes

(2)

Mark has to go to a meeting in Stafford.
He will catch the train in Stockport.
He needs to arrive in Stafford **before** 08 00

(b)   Write down the time of the latest train he can catch from Stockport.

....

(1)

(c)   Work out how long it should take the 07 05 train from Manchester to get to London
        Euston.
        Give your answer in hours and minutes.

.... hours .... minutes

(1)

The 06 45 train from Manchester takes more time to get to London Euston than the 07 05 train from Manchester.
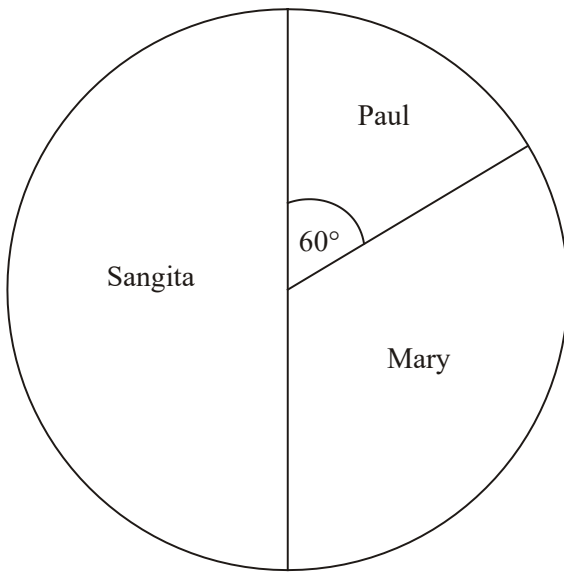
(d)   Work out how many more minutes the 06 45 train takes.

.... minutes

(2)

(Total 6 marks)

8.   The pie chart gives information about the votes received by Paul, Mary and Sangita in an election.

(a)   Who got the least votes?

....

(1)

The total number of votes in the election was 36

(b)   How many votes did Sangita get?

....

(1)

The angle in the pie chart for Paul is 60°

(c)   What fraction of the votes did Paul get?
           Write your fraction in its simplest form.

....

(2)
(Total 4 marks)

9. José is in hospital.
Here is his temperature chart during one day.
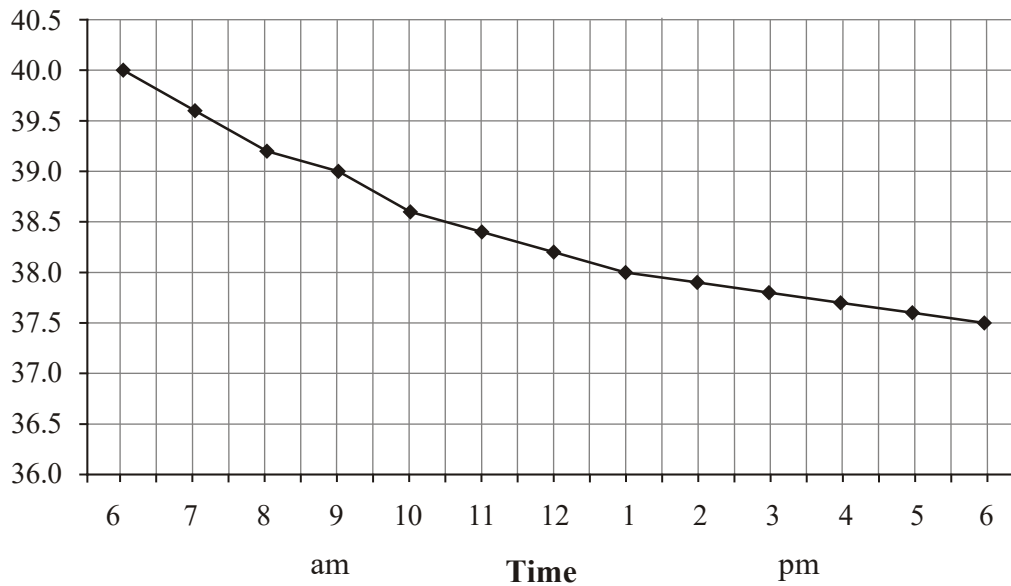
(a) At what time was José's temperature 39.0°C?

....

(1)

(b) What can you say about José's temperature from 6 am to 6 pm?

....

(1)

(Total 2 marks)

10. The table shows the distances in kilometres between 5 cities.

Hull				
100	Leeds			
162	73	Manchester		
110	60	65	Sheffield	
63	40	118	95	York

(a) Write down the distance between Hull and Manchester.

.... km

(1)

(b)   From the table, write down the name of the city which is

(i)   nearest to Hull,

....

(ii)   60 km from Sheffield.

....
(2)
(Total 3 marks)
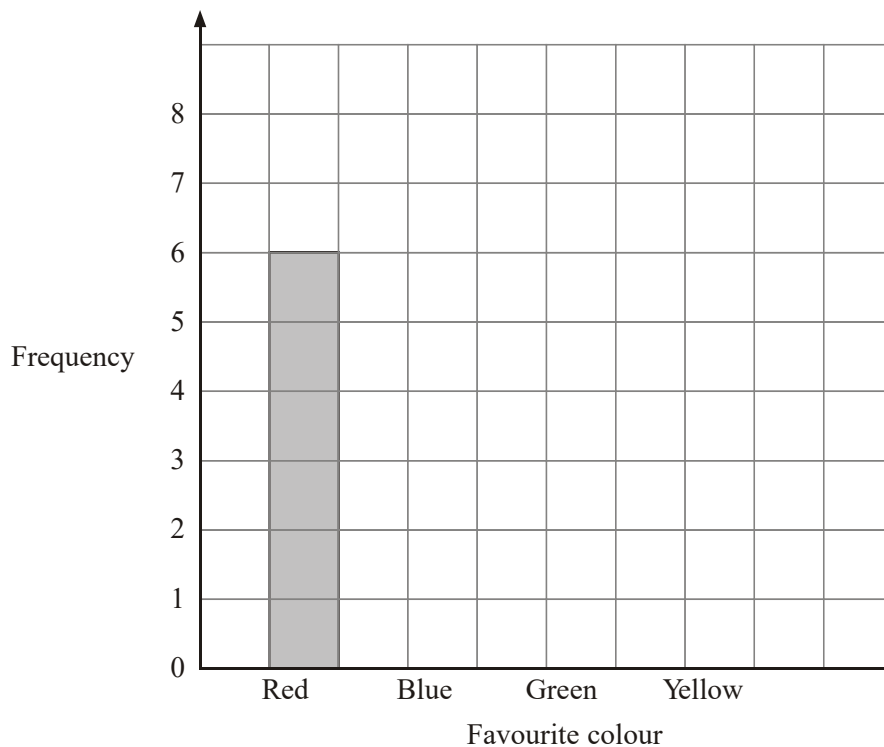
11.   Steve asked his friends to tell him their favourite colour.

Here are his results.

Favourite colour	Tally	Frequency
Red		6
Blue		8
Green		5
Yellow		3

(a)   Complete the bar chart to show his results.

(2)

(b)   Which colour did most of his friends say?

....

(1)

(Total 3 marks)

12. This bar chart gives information about the numbers of rabbits, cats, dogs and lizards taken to a vet on Monday.
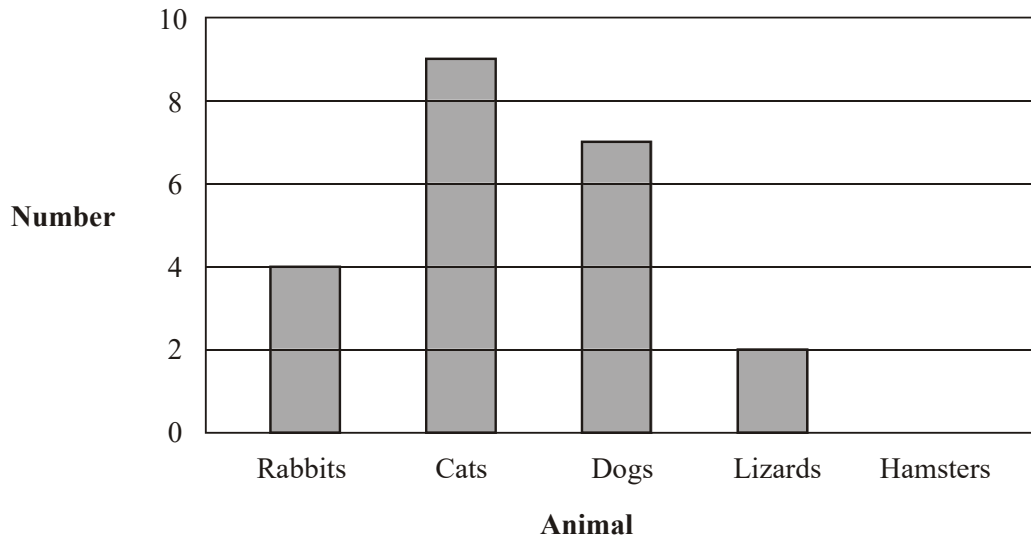
(a)   Write down the number of rabbits taken to the vet on Monday.

....

(1)

(b)   Write down the number of dogs taken to the vet on Monday.

....

(1)

5 hamsters were also taken to the vet on Monday.

(c)   Use this information to complete the bar chart.

(1)
(Total 3 marks)

13. Here is part of a train timetable from Peterborough to London.

Station	Time of leaving
Peterborough	08 44
Huntingdon	09 01
St Neots	09 08
Sandy	09 15
Biggleswade	09 19
Arlesey	09 24

(a) Which station should the train leave at 09 01?

....

(1)

The train arrives in Sandy at 09 12

(b) How many minutes should the train wait in Sandy?

.... minutes

(1)

The train should take 41 minutes to travel from Arlesey to London.

(c) What time should the train arrive in London?

....

(1)

(Total 3 marks)

14.   Emily wrote down the number of hours of television she watched each day for seven days.
The bar chart shows this information.
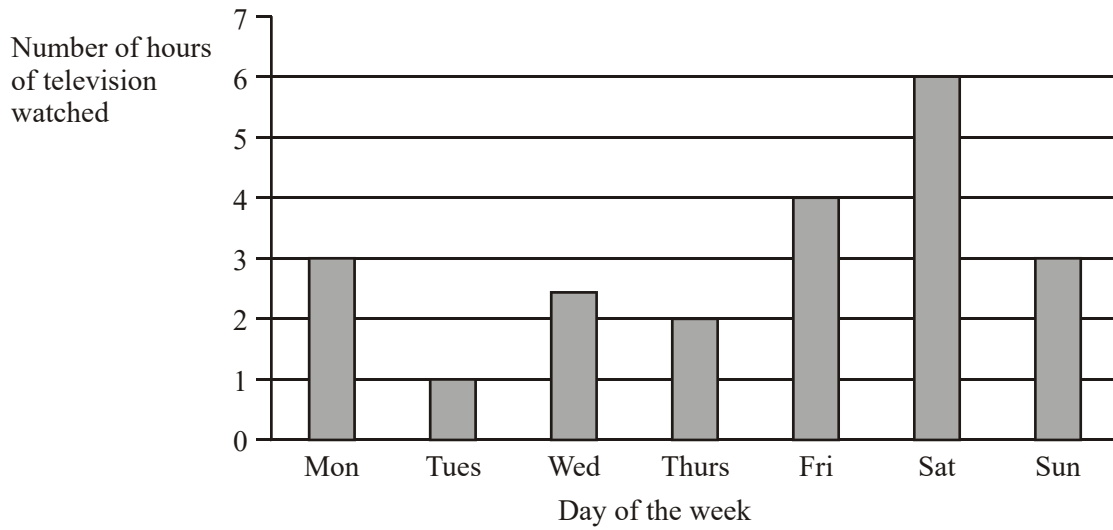
(a)   On which day did Emily watch the **least** number of hours of television?

…………………………

(1)

(b)   Write down the number of hours of television she watched on Wednesday.

…………………………

(1)

There were two days on which Emily watched the same number of hours of television.

(c)   Write down the names of these two days.

……………………………….. and ………………………………..

(1)
(Total 3 marks)

15. Some bulbs were planted in October.
The ticks in the table shows the months in which each type of bulb grows into flowers.

		Month					
		Jan	Feb	March	April	May	June
Type	Allium					✓	✓
of	Crocus	✓	✓				
bulb	Daffodil		✓	✓	✓		
	Iris	✓	✓				
	Tulip				✓	✓	

(a)   In which months do tulips flower?

....

(1)

(b)   Which type of bulb flowers in March?

....

(1)

(c)   In which month do most types of bulb flower?

....

(1)

(d)   Which type of bulb flowers in the same months as the iris?

....

(1)
(Total 4 marks)

16.   Here is an incomplete pictogram.

It shows some information about the number of books sold during one week from Monday to Thursday.
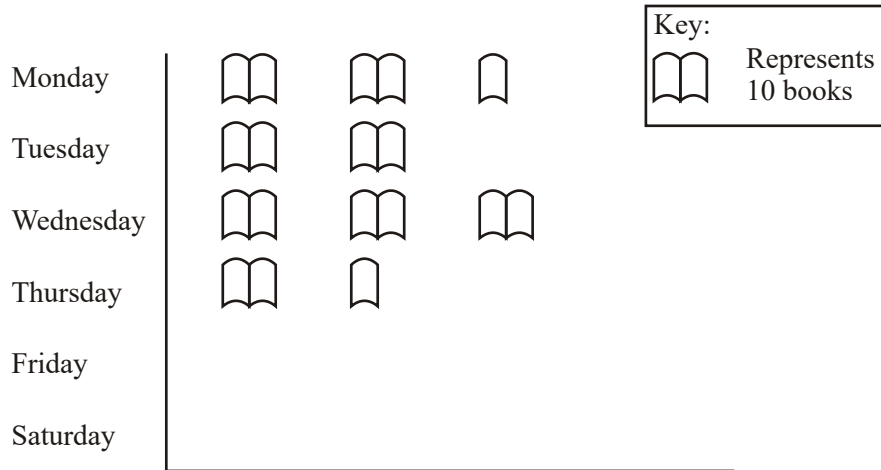
(a)   Write down the number of books sold on

(i)   Wednesday,

....

(ii)   Monday.

....

(2)

On Friday, 20 books were sold.

(b)   Show this on the pictogram.

(1)

On Saturday, 35 books were sold.

(c)   Show this on the pictogram.

(1)
(Total 4 marks)

17.   Here are four bar charts showing information about the temperatures at midday in four different cities last week.
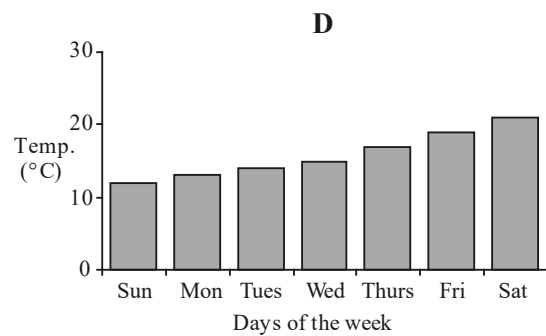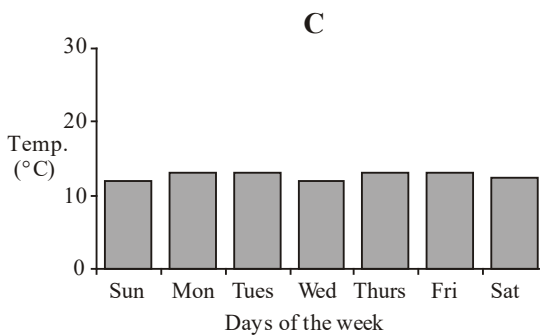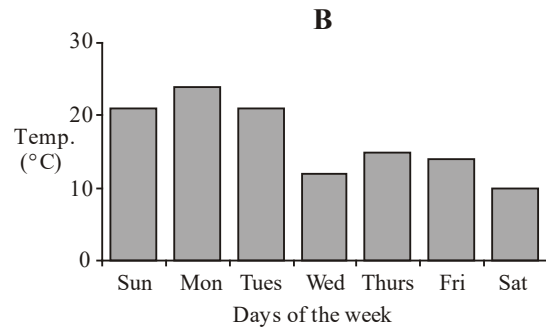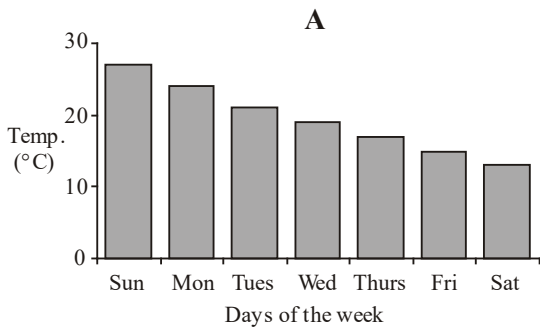
Put a cross in the box underneath the letter of the bar chart which best matches the sentences. One has already been done for you.

		A	**B**	**C**	**D**
(i)	Each temperature at midday was higher than the day before.	☒	☒	☒	☒
(ii)	Each temperature at midday was about the same.	☒	☒	☒	☒
(iii)	Each temperature at midday was lower than the day before.	☒	☒	☒	☒

(Total 2 marks)

01.   (a)   Missing horiz label 1 (and 6) missing on vertical scale   2
                    B1
                    B1

(b)   Correct graph   2
                    B1 for bar up to 4 for yellow
                    B1 for bar up to 2 for green

(c)   Blue   1

          B1 cao

(d)   14   1

$3 + 5 + 4 + 2$

          B1 ft from (b)

(e) $\dfrac{3}{14}$ 1

          B1 ft on '14'

                                                [7]

02.   (a)   (i)   30   2

                    B1 for 30

          (ii)   25

                    B1 for 25

(b)   (i)   4 shapes   2

                    B1 for drawing 4 shapes

          (ii)   1½ shapes

                    B1 for drawing 1½ shapes

                                                [4]

03.   (a)   April & May   1

              B1 for both

(b)   Daffodil   1

              B1

(c)   Feb   1

              B1

(d)   Crocus   1

              B1

(e)   (i) $\dfrac{1}{5}$ 2

  B1 for $\dfrac{1}{5}$ *oe*

  (ii)   × from 56 mm to
         64 mm from 0
         B1 A single mark on the line, between 56 mm and
         64 mm measured from end 0

                                                                                         [6]

04.   (a)   Five thousand and sixty seven   1
               B1 cao (accept 5) condone omission of "and"

  (b)   1400   1
        B1 cao

                                                                                         [2]

05.   (a)   4539   1
               B1 cao

  (b)   Chicago   1
        B1 cao

  (c)   Boston   1
        B1 cao

                                                                                         [3]

06.   (a)   27.5   1
               B1 accept $27^{1}/_{2}$

  (b)   11   1
        B1 cao

                                                                                         [2]

07. (a) (i) 09 06

       (ii) 39   2

B1 (accept 9 06 oe)
B1 cao

    (b) 06 55   1

B1 (accept 6 55 oe)

    (c) 2h 6min   1

B1 cao

    (d) 15 min   2

M1 for 0906 – 0645 – "(c)"
or 0906 – 0645 − 2hr 6min
or 2hr 21min − "(c)" or 2hr 21min − 2hr 6 min
or 141 − 126 or 20 − 5
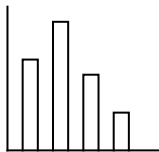*A1 cao*
SC: B1 for 55 or 75 or 93 seen

                                                       [6]

08. (a) Paul   1

B1 cao

    (b) 36 ÷ 2 oe
         = 18   1

B1 cao

    (c) 60/360 = 1/6   2

M1 60/360 oe
A1 cao

                                                       [4]

09. (a) 09 00   1

B1 accept 9 or 9 am

    (b) It went down   1

B1 for It gets less oe
B0 for any contradictions

                                                       [2]

10.   (a)   162   1
                          B1 for 162 cao

         (b)   (i)   York   2
                                 B1 for York cao

                     (ii)   Leeds
                                 B1 for Leeds cao

                                                                       [3]

11.   (a)

           Bars drawn at heights 8, 5 and 3   2
                     B2 for 3 bars drawn correctly
                     (B1 for one bar drawn correctly or for 3 bars with correct
                     heights)

         (b)   Blue   1
                          B1 ft for "blue" (ft from table or their bar chart)

                                                                         [3]

12.   (a)   4   1
                          B1 cao

         (b)   7   1
                          B1 cao

         (c)   Bar at 5   1
                          B1 cao. Bars may be narrow, but cannot be so narrow as to be
                          a "bar line".

                                                                            [3]

13.   (a)   Huntingdon   1
                          B1 cao

         (b)   3   1
                          B1 cao

         (c)   10 05   1
                          B1 cao

                                                                            [3]

14. (a) Tuesday   1
                  B1

(b) 2 ½ hours   1
                  B1 accept 2.5 ± 0.1 oe

(c) Mon & Sun   1
                  B1

                                                                              [3]

15. (a) April & May   1
                  B1 for both

(b) Daffodil   1
                  B1

(c) Feb   1
                  B1

(d) Crocus   1
                  B1

16. (a) 30   2
                  B1 cao

          25
                  B1 cao

(b) 2 × diag   1
                  B1 cao

          3.5 × diag   1
                  B1 cao

                                                                              [4]

17. (i) C   1
                  B1 for each correct answer

(ii) A   1
                                                                              [2]

01.   Mathematics A Paper 2

For their answers to (a), most candidates could correctly and clearly explain that there was a label missing on the horizontal axis but fewer were able to give a lucid explanation of what was wrong with the frequency axis. Many candidates gave the reason that there was 'no title'. This answer was not accepted.
Nearly all candidates successfully completed the bar chart in part (b) and went on to give the correct answers of 'blue' for the mode in (c) and '14' for the number of teachers in (d). There were very few successful attempts to part (e). The incorrect answer of one third was frequently seen.

Mathematics B Paper 15

Many were able to recognise that there were two obvious things wrong with the bar chart. Others were critical about a lack of title and the fact that the teachers' names had not been written down; neither of which were awarded marks. Clare's bar chart was nearly always correctly completed. The word 'mode' was correctly interpreted by most as was the number of teachers represented on the bar chart. In the final part the fraction was not always correctly given in spite of the follow through allowed from previous working.

02.   Mathematics A Paper 1

Candidates at this tier normally understand pictograms. This was true in this case as usual. About 95% of candidates were able to give correct answers to this question.

Mathematics B Paper 14

This question was generally well answered demonstrating a good understanding of a pictogram and the ability to relate the symbols to specific quantities. Over 90% of the candidates obtained all 4 marks for this question.

03.   Errors were rare in the first four parts but the final part proved considerably more demanding. In part (e)(i), $\frac{2}{11}$ was the most popular wrong answer while, in part (e)(ii), crosses could appear anywhere on the probability scale, particularly at $\frac{1}{2}$. Whether this was because of unfamiliarity with probability scales or an error in finding the probability itself is impossible to say.

04.   Around 80% of the candidates were successful in each part.

05. **Specification A**

It was disappointing to find that less than a third of the candidates were able to correctly write down the distance between Los Angeles and New York, although over 80% were able to name the correct cities in (b) and (c).

Specification B

Only 32 % of candidates successfully completed the first part of this question. It seems that many candidates are not familiar with using tables similar to the one given in this question to find the distance between two towns. They did not realize the significance of the instruction to "write down" the required distance and a variety of calculations were seen in the working space. However over 80% and 90% of candidates could identify the correct cities in parts (b) and (c) of the question.

06. Again this question was well understood and success was achieved by about 90% of candidates.

07. Almost 90% of candidates were able to use the timetable to find the arrival time of the train in part (a)(i) but under 50% were able to work out the time to travel between stations in part (a)(ii).

Just over a half of candidates successfully worked out the correct time taken for the 07:05 train from Manchester to reach London in part (c). 2 hours 16 minutes was often seen suggesting that candidates had added the 5 and 11 in the two times rather than subtracting one from the other.

Part (d) of the question proved to be a good discriminator between candidates. A significant number of candidates worked out the time taken between stations by the 06:45 train and left this as their answer. Only about one quarter completed this part successfully. There was evidence of a fair number of candidates treating the times as decimal numbers and carrying out calculations for the difference in times accordingly.

08. Nearly all candidates gained the mark for simple interpretation of the pie chart in the first part of this question. About three in every five candidates were able to work out the correct number of votes in part (b).though a significant minority doubled rather than halved the 36given.

The final part of the question proved to be more of a challenge with only about 10% of candidates gaining both marks for a correctly simplified fraction.

09.   **Foundation Tier**

This question was both well understood and well answered.

Intermediate Tier

Part (a) was well attempted by most candidates and a large number of fully correct tables were seen. The most common error was in the calculation of the y value for $x = -1$. Surprisingly, in part (b), many candidates did not associate the table from (a) with what they were being asked to do. Many of those with a correct table did not plot anything at all and some drew lines that bore no resemblance to the table. As incorrect lines passing through (0, 1) were quite common it could be that these candidates were using $y = mx + c$. Part (c) was poorly answered. A large number of correctly drawn graphs gave rise to no answers or to incorrect answers. Even though the question asked candidates to "use your diagram" many attempted to work out the values algebraically or, more commonly, by trial and error. These attempts rarely succeeded.

10.   The level of success in this question was both surprising and disappointing with many candidates unable to interpret the mileage chart correctly. Less than one third of the candidates found the correct distance between Hull and Manchester in part (a). Many assumed that the figures in the third row of the table related to Manchester so that the most common incorrect answers were 110 and 45 (from 110 – 65). Part (b)(i) was answered more successfully with just under half of the candidates identifying York as the city nearest to Hull. The most common incorrect answer was Leeds, which was next to Hull in the table. Most success was achieved in part (b)(ii) with almost three quarters of candidates giving the correct answer.

11.   Both parts of this question were answered very well indeed. Few marks were lost in the completion of the bar chart in part (a) and where they were it was more often because of incorrect widths or placement of the bars rather than the heights of the bars. A small number of candidates either gave the answer '8' rather than 'blue' in part (b) or gave no answer at all.

12.   This was a well answered question with most candidates scoring full marks. Zero marks in any section were usually due to non-attempts.

13.   Over 90% of the candidates got the first two parts correct but many struggled with part (c). The most common error was 0965. Also seen were numbers close to the correct answer, out by one or ten minutes.

14.   Most scored full marks on this question. A minority gave the number of hours in both hours and minutes which was rewarded but 2.30 *hours* was also seen and did not gain the mark.

15.   This question was very well answered by most candidates. The most common error was to put crocus and daffodil in part (d).

16.   This was a well answered question. Nearly all candidates gained full marks. Only a small number failed to show the correct book shape in (c), usually showing a representation for 40 rather than 35.

17.   This question was done well by many candidates. Most were able to identify bar chart C for statement (ii), but a common incorrect answer for statement (iii) was B.