Class Test ❰ 4 ❱

40

Answer all questions. Show your working clearly.

1. The table shows the number of sit-ups that a group of people can do in 1 minute.

Number of sit-ups	32	33	34	35	36	37	38	39
Number of participants	22	15	32	36	26	q	11	4

   (a) 25% of the participants can do 37 and 38 sit-ups in 1 minute. Find q. [1]
   (b) Find
       (i) the mean number of sit-ups, [1]
       (ii) the modal number of sit-ups, [1]
       (iii) the median number of sit-ups. [1]
   (c) Find the percentage of participants who did more than 35 sit-ups, giving your answer to 1 decimal place. [1]

2. The number of drinks that a canteen stall sells daily over a period of time is shown in the table below.

75	88	82	95	77	101	86
82	78	96	98	105	77	85
92	103	87	88	92	72	83

   (a) Construct a stem-and-leaf diagram to illustrate this data. [2]
   (b) Find the median number of drinks sold daily. [1]
   (c) Each drink is sold for $0.90. Find the difference in revenue collected between the days with the most number and the least number of drinks sold. [1]
   (d) Find the percentage of days with more than 90 drinks sold, leaving your answer correct to 1 decimal place. [1]

Chapter 10 • Statistical Diagrams and Averages

3.   The marks obtained by a group of students for a Geography test are shown in the table below.

Marks (x)	Frequency
$0 \leqslant x < 10$	2
$10 \leqslant x < 20$	8
$20 \leqslant x < 30$	40
$30 \leqslant x < 40$	10

(a)   Draw a histogram to illustrate the data.   [2]

(b)   The passing mark is 20. Find the ratio of the number of students who failed to the total number of students.   [1]

(c)   Describe the distribution of the marks obtained by the group of students for the Geography test.   [1]

4.   The number of hours workers work per week is illustrated in the following histogram.
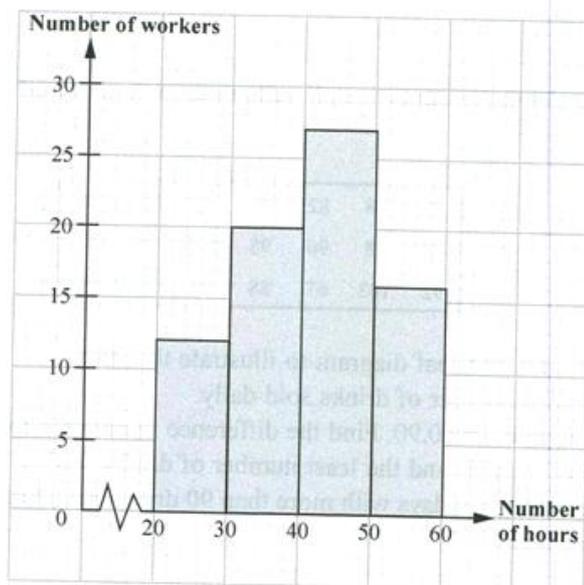
(a)   Find an estimate for the mean number of hours worked per week.   [2]

(b)   Find the percentage of workers who work less than 30 hours per week.   [1]

(c)   An additional worker works 82 hours per week. Does this worker affect the median or the mean more?   [1]

5. In a school garden, the heights of the new plants are recorded below.

12	10	16	15	8	10	8	13	12	13
11	7	8	10	7	12	13	15	13	12
15	13	13	11	8	7	8	9	10	10
11	8	9	9	13	15	12	13	11	10

    (a)   Draw a dot diagram to illustrate the data. [2]

    (b)   Find

        (i)   the modal height, [1]

        (ii)   the median height. [1]

    (c)   Find the ratio of the number of plants that are 10 cm or shorter to the total number of plants. [1]

6. A group of people is surveyed on the number of pets they own. The results are shown in the following table.

Number of pets	0	1	2	3	4	5	6
Number of people	13	n	16	5	3	2	1

    (a)   Given that the mean number of pets owned is 1.7, find n. [1]

    (b)   Draw a dot diagram to illustrate the data. [2]

    (c)   (i)   State the modal number of pets owned. [1]

        (ii)   State the median number of pets owned. [1]

    (d)   Find the percentage of people who own more than 3 pets. [1]

Chapter 10 • Statistical Diagrams and Averages

7.   The table shows the time taken by a group of students to complete a shuttle run.

Time (x seconds)	Number of students
$9 \leqslant x < 10$	17
$10 \leqslant x < 11$	23
$11 \leqslant x < 12$	35
$12 \leqslant x < 13$	31
$13 \leqslant x < 14$	21
$14 \leqslant x < 15$	18
$15 \leqslant x < 16$	5

(a)   Draw a histogram to illustrate the data.   [2]
(b)   (i)   Find the mean time taken.   [1]
       (ii)   State the modal class interval.   [1]
       (iii) Which, the mean or modal class, is a more accurate represention of the data?
                                                                                   [1]
(c)   Find the percentage of students who complete the shuttle run in less than 12 seconds.
                                                                                   [1]

8.   The average weekly temperature in a city is recorded over a period of time.

Week	Temperature (°C)	Week	Temperature (°C)
1	29.8	13	29.2
2	27.3	14	27.5
3	28.5	15	28.3
4	30.6	16	27.0
5	30.2	17	26.4
6	31.4	18	27.8
7	32.8	19	26.5
8	30.7	20	24.5
9	29.1	21	23.0
10	32.4	22	22.2
11	31.0	23	22.4
12	28.7	24	21.3

(a)   Copy and complete the following frequency table.

Temperature (x°C)	Frequency
$21 \leqslant x < 23$	
$23 \leqslant x < 25$	
$25 \leqslant x < 27$	
$27 \leqslant x < 29$	
$29 \leqslant x < 31$	
$31 \leqslant x < 33$	

                                                                                   [1]
(b)   Draw a histogram to illustrate the data.   [2]
(c)   Calculate an estimate for the mean temperature.   [2]