

**Class Test 3** »



Answer all questions. Show your working clearly.

1. The table shows the monthly salary, rounded off to the nearest hundred dollars, received by 80 employees in a company.

Monthly salary (\$)	1700	1800	1900	2000	2100	2200
Number of employees	18	$m$	7	21	$n$	8

- (a) (i) Prove that  $m + n = 26$ . [1]  
 (ii) The mean salary of employees is \$1923.75. Find an equation connecting  $m$  and  $n$ , in its simplest terms. [1]  
 (iii) Hence, find the values of  $m$  and  $n$ . [2]  
 (b) State the median monthly salary of the employees. [1]  
 (c) Find the percentage of employees who receives a monthly salary of more than \$2000. [1]
2. Some families are surveyed and the number of children in each family is recorded in the table below.

3	1	2	0	1	3	2	1	1	4
1	0	1	3	3	2	1	2	7	1
0	4	0	1	2	0	3	0	2	0
1	5	3	2	0	3	1	0	3	4

- (a) (i) Construct a frequency table for the data. [1]  
 (ii) Draw a dot diagram to illustrate the data. [2]  
 (b) Find the median number of children each family has. [1]  
 (c) Find the percentage of families who has the modal number of children. [1]
3. Data is collected from a group of people on the number of hours they spent watching TV over 5 days. The data is shown below.

6	1	4	3	15	9	0	2	7	6
10	2	4	5	6	5	3	3	5	2
7	8	5	0	1	3	2	7	5	6

- (a) Draw a dot diagram illustrating the data above. [2]  
 (b) (i) Find the mean number of hours spent watching TV. [1]  
 (ii) Explain why the mean is not an accurate representation of the data. [1]

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4. The number of fruits sold at a fruit stall every day over 80 days is shown below.

Number of fruits ( $x$ )	Frequency
$80 \leq x < 100$	7
$100 \leq x < 120$	19
$120 \leq x < 140$	15
$140 \leq x < 160$	22
$160 \leq x < 180$	8
$180 \leq x < 200$	9

- (a) Draw a histogram to illustrate the data. [2]
- (b) Calculate an estimate for the mean number of fruits sold per day. [1]
- (c) Describe the distribution of fruits sold at the fruit stall over the 80 days. [1]

5. The number of minutes each participant takes to complete a 5-km run is listed in the table below.

32	35	33	32	25	26	30	33
35	34	28	28	27	30	32	31
30	28	29	31	35	25	24	28
33	32	33	35	34	29	30	26
28	31	36	41	27	28	35	23

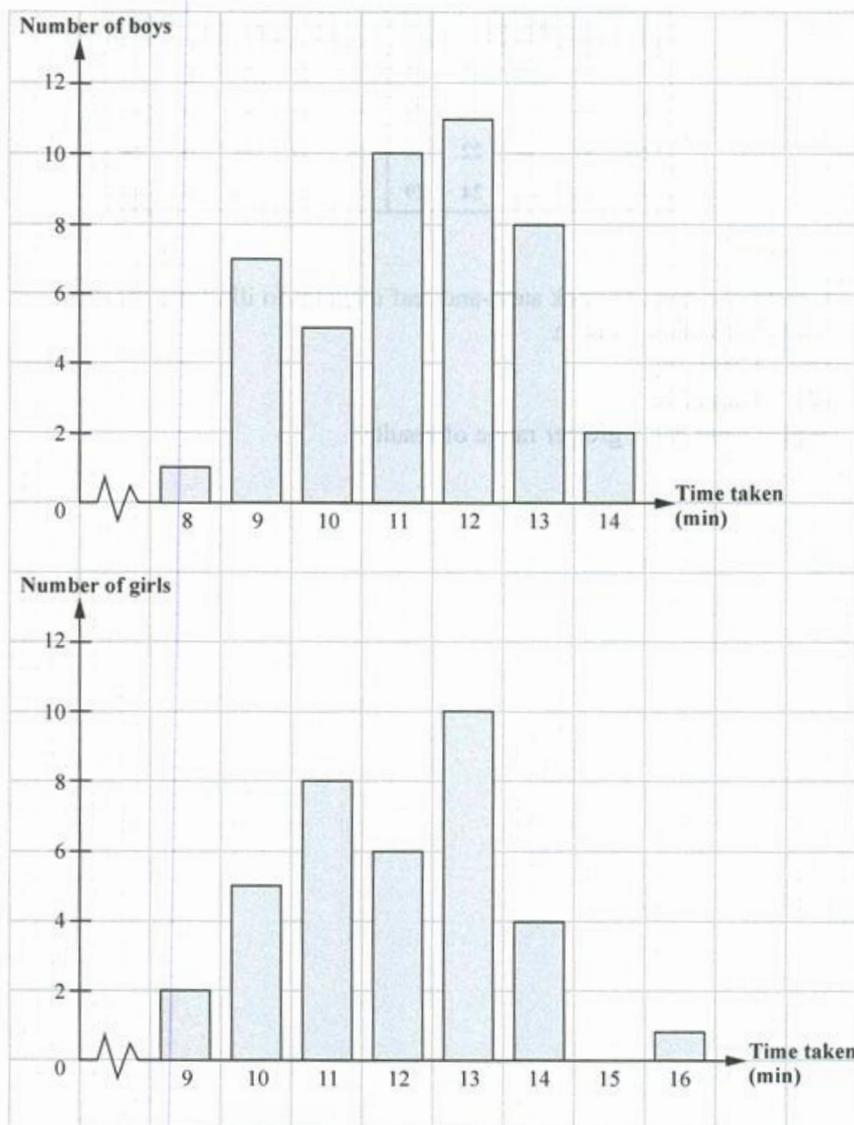
- (a) Construct a stem-and-leaf diagram using the data above. [2]
- (b) (i) State the modal time taken. [1]
- (ii) State the median time taken. [1]
- (c) Find the ratio of participants who completed the run within 25 to 29 minutes to the total number of participants. [1]

6. The speed of vehicles along a certain stretch of the expressway is recorded in the table below.

Speed ( $x$ km/h)	Frequency
$40 \leq x < 50$	2
$50 \leq x < 60$	4
$60 \leq x < 70$	7
$70 \leq x < 80$	18
$80 \leq x < 90$	21
$90 \leq x < 100$	5
$100 \leq x < 110$	3

- (a) Draw a histogram to illustrate the data. [2]
- (b) Calculate an estimate for the mean speed of the vehicles. [2]
- (c) The speed limit is 90 km/h. Find the percentage of vehicles who are travelling above the speed limit. Give your answer correct to 1 decimal place. [1]

7. The amount of time a group of Secondary students take to run 2.4 km is recorded, and illustrated in separate bar charts, according to gender.



- (a) Calculate the mean time taken for  
 (i) the boys, [1]  
 (ii) the girls, leaving your answer correct to 4 significant figures. [1]
- (b) Compare the performance of the boys and the girls. [1]
- (c) Find the mean time taken by the entire group of students, leaving your answer correct to 4 significant figures. [1]
- (d) The timing for an 'A' grade is less than 10 minutes. Find the percentage of students who got an 'A' for the 2.4-km run. [2]

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8. The results of two classes for a Mathematics test are listed in the table below.

Class 2A					Class 2B				
22	18	19	23	31	18	21	35	25	22
25	18	17	23	28	32	33	40	21	25
27	33	39	22	24	28	29	33	38	24
32	20	23	24	29	17	20	34	27	28

- (a) Construct a back-to-back stem-and-leaf diagram to illustrate the data. [2]
- (b) Find the median score in
- (i) Class 2A, [1]
- (ii) Class 2B. [1]
- (c) Which class has a greater range of results? [1]