

There are no spaces between the bars  
The data in a histogram is continuous - measured  
on a scale i.e. height, weight, temperature.



T&T3 13.2



T&T3  
13.2.pptx

**PROJECT MATHS**

**Text & Tests**

**Leaving 3 Certificate**

## Section 13.2 Histograms

### Example 1

The frequency table below shows the times taken by 32 students to solve a problem.

<b>Time (in secs)</b>	0–10	10–20	20–30	30–40	40–50	50–60
<b>No. of students</b>	1	2	8	12	6	3

- (i) Draw a histogram to represent this data.
- (ii) Write down the modal class.
- (iii) In which interval does the median lie?



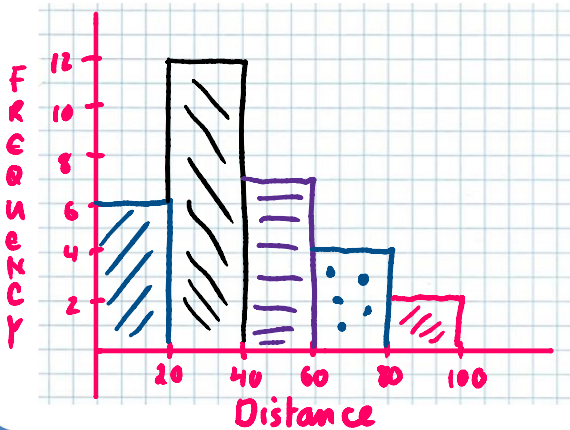
### Exercise 13.2

1. At the end of their journeys, 30 motorists were asked how many kilometres they had travelled. Their responses are shown in the table below:

Distance (in km)	0-20	20-40	40-60	60-80	80-100
Frequency	6	12	7	4	1

[0-20 means  $\geq 0$  and  $< 20$ ]

- (i) Draw a histogram to illustrate this data.  
 (ii) How many motorists had travelled 40 km or more?  $7+4+1 = 12$   
 (iii) What is the modal class?  $20-40$   
 (iv) What percentage of the motorists travelled between 20 km and 40 km?  $\frac{12}{30} \times 100 = 40\%$

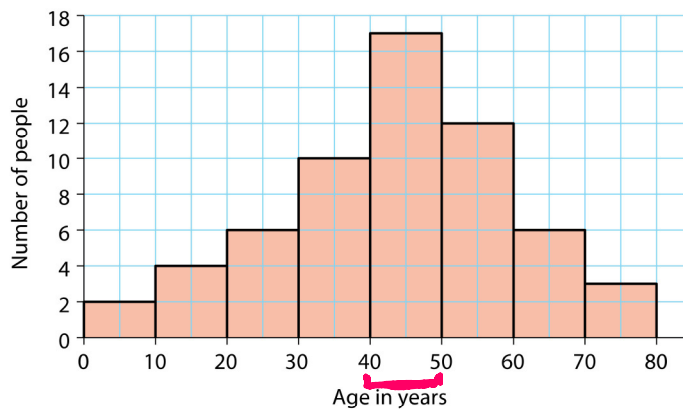


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### Exercise 13.2

2. The histogram below shows the ages of people living in a village.

- (i) How many people were aged between 30 years and 40 years?  
 (ii) Which is the modal class?  
 (iii) How many people were aged under 30 years?  
 (iv) How many people lived in the village?  
 (v) Which interval contains 20% of the people surveyed?  
 (vi) In which interval does the median age lie?



$\frac{n+1}{2}$      $n = 60$      $\frac{61}{2} = 30.5$   
 $\downarrow$      $\downarrow$   
 30    31 value.

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### Exercise 13.2

3. The frequency table on the right gives the waiting times of a group of patients at a doctor's surgery.

- Draw a histogram to illustrate this data.
- How many patients were included in the survey?
- Which is the modal class?
- In which interval does the median lie? **12-16**
- What is the greatest number of patients who could have waited longer than 10 minutes? **30**

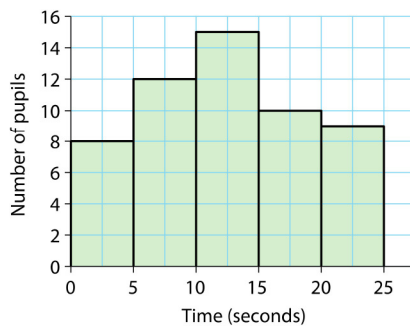
Waiting time (in mins)	No. of patients
0-4	2
4-8	6
8-12	10
12-16	12
16-20	8

Handwritten notes next to the table:  
 A bracket groups the 0-4, 4-8, and 8-12 rows with the number 8.  
 A bracket groups the 8-12, 12-16, and 16-20 rows with the number 18.  
 A bracket groups the 12-16 and 16-20 rows with the number 30.

Handwritten calculations:  
 $38 = n$   
 $\frac{n+1}{2} = \frac{38+1}{2} = \frac{39}{2} = 19.5$   
 The number 19.5 is written with lines pointing to the numbers 19 and 20 above it.

### Exercise 13.2

4. The histogram below shows the times taken, in seconds, for a group of pupils to solve a puzzle.



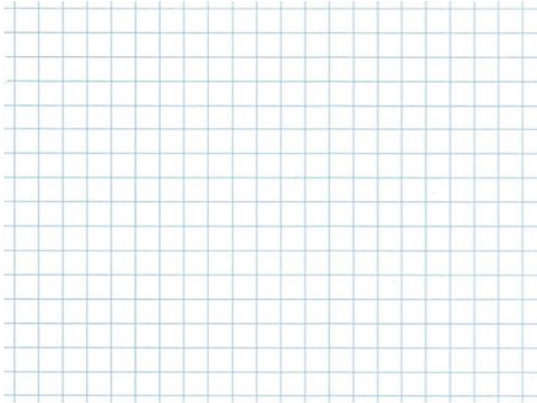
- How many pupils took 15 seconds or longer to solve the puzzle?
- How many pupils took part in the test?
- Which is the modal class?
- In which interval does the median lie? **10-15**
- What is the greatest number of pupils who could have solved the puzzle in less than 8 seconds?
- What is the least number of pupils who could have solved the puzzle in less than 12 seconds?

### Exercise 13.2

5. The grouped frequency table opposite shows the minutes spent in a shopping complex by a number of people:

- (i) Draw a histogram to illustrate the data.
- (ii) Write down the modal class.
- (iii) In which interval does the median lie?
- (iv) Which interval contains exactly 20% of the people?
- (v) What is the greatest number of people who could have spent more than 30 minutes in the shopping complex?
- (vi) Use the mid-interval values to calculate the mean time spent in the shopping complex, correct to the nearest minute.

Minutes	Number of people
5–15	8
15–25	14
25–35	28
35–45	20



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### Answers 13.2

1. (ii) 12 (iii) (20 – 40) km  
(iv) 40%
2. (i) 10 (ii) (40 – 50) yr  
(iii) 12 (iv) 60  
(v) (50 – 60) yr (vi) (40 – 50) yr
3. (ii) 38 (iii) (12 – 16) min  
(iv) (12 – 16) min (v) 30
4. (i) 19 (ii) 54  
(iii) (10 – 15) sec (iv) (10 – 15) sec  
(v) 20 (vi) 20
5. (ii) (25 – 35) min (iii) (25 – 35) min  
(iv) (15 – 25) min (v) 48  
(vi) 29 min