

Exercise 15.3

1.

The stem and leaf diagram shows the ages, in years, of 25 people who wished to enter a 10km walking competition.

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

i) How many people were less than 20 years old?

1	4	4	6	9			→ four people less than 20
2	1	3	7	7	7	8	
3	3	6	6	7	9		

4 people are less than 20.

ii) Write down the modal age.

1	4	4	6	9			
2	1	3	7	7	7	8	→ modal age
3	3	6	6	7	9		
4	0	2	3	3	8	8	
5	1	3	3	7			

Modal age = 27

iii) How many people were between 35 and 45 years old?

1	4	4	6	9			
2	1	3	7	7	7	8	
3	3	6	6	7	9		
4	0	2	3	3	8	8	→ 8 people between 35 & 45
5	1	3	3	7			

8 people between 35 and 45.

iv) What was the median age?

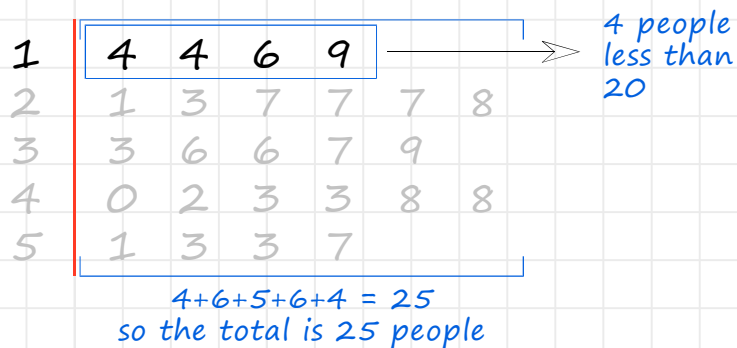
1	4	4	6	9			4 people
2	1	3	7	7	7	8	6 people
3	3	6	6	7	9		5 people
4	0	2	3	3	8	8	6 people
5	1	3	3	7			+ 4 people
							<hr/> 25 people

25 ages sorted in order of size mean the 13th is the median age

1	4	4	6	9			
2	1	3	7	7	7	8	
3	3	6	6	7	9		→ the 13th age is 36
4	0	2	3	3	8	8	
5	1	3	3	7			

v)

What percentage of people were under 20 years of age?



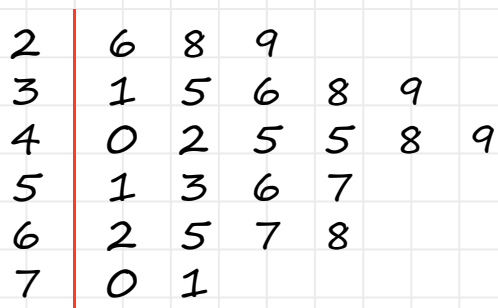
Percentage of people under 20

$$= \frac{\text{No of people under 20}}{\text{Total number of people}} \times \frac{100}{1}$$

$$= \frac{4}{25} \times \frac{100}{1} = \frac{400}{25} = 16\%$$

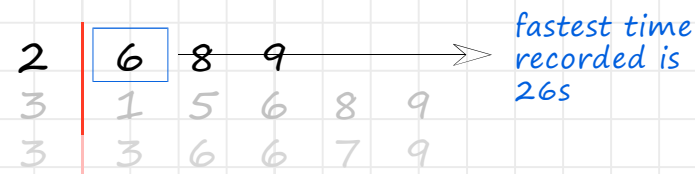
2.

The stem and leaf diagram shows the times, in seconds, taken by a group of first year pupils to complete a 200m race.



i)

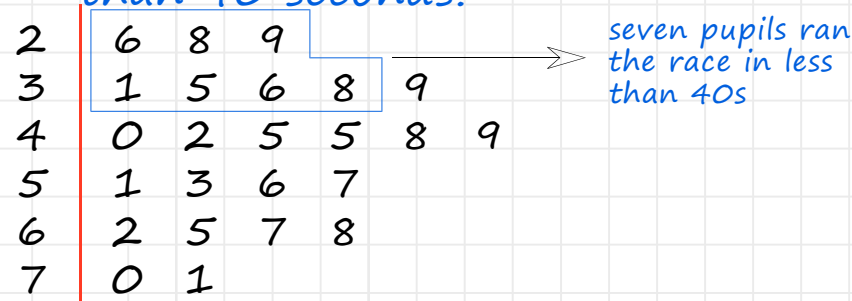
What was the fastest time recorded?



The fastest time recorded by a first year pupil is 26 seconds.

ii)

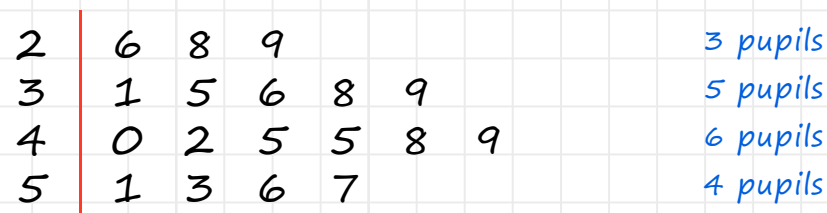
How many pupils ran the race in less than 40 seconds?



Seven pupils ran the race in a time less than seconds.

iii)

How many pupils took part in the race?



6	2	5	7	8
7	0	1		

4 pupils
+ 2 pupils

24 pupils

vi)

What was the difference between the times of the fastest and slowest pupils?

24 pupils took part in the race.

2	6	8	9	→ fastest pupil's time is 26s		
3	1	5	6	8	9	
4	0	2	5	5	8	9
5	1	3	6	7		
6	2	5	7	8		
7	0	1		→ slowest pupil's time is 71s		

iv) What was the time of the eighth fastest pupil?

2	6	8	9			
3	1	5	6	9	→ The 8th fastest time is 39s	
4	0	2	5	5	8	9
5	1	3	6	7		

The time of the eighth fastest pupil is 39 seconds.

slowest time - fastest time

$$= 71s - 26s = 45s$$

so the difference between the fastest and the slowest time is 45 seconds.

v) What was the time of the third slowest pupil?

2	6	8	9			
3	1	5	6	9	→ The 8th fastest time is 39s	
4	0	2	5	5	8	9
5	1	3	6	7		

The time of the eighth fastest pupil is 39 seconds.