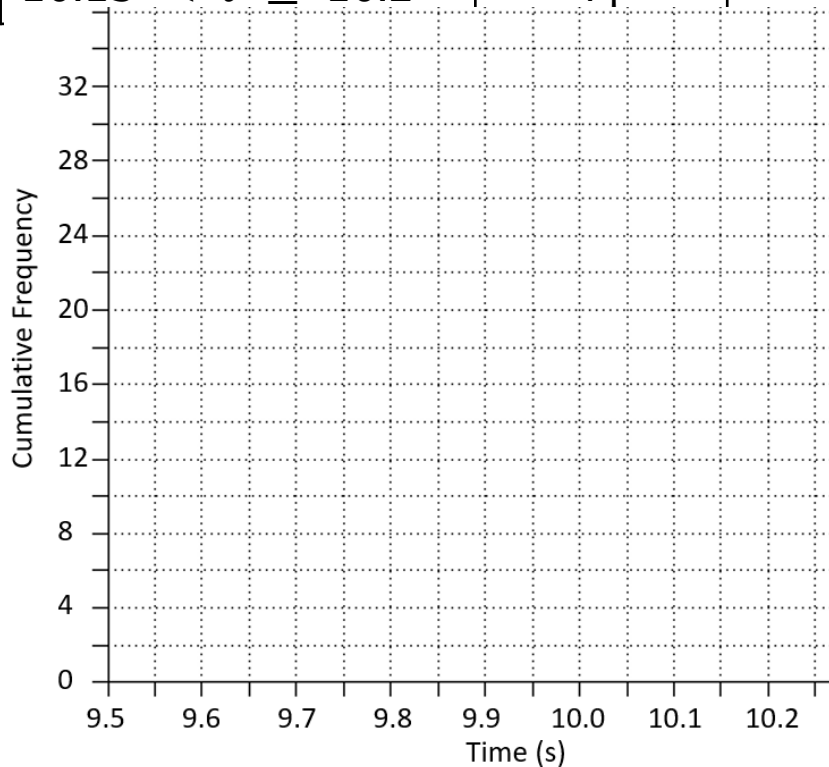


3.3) Cumulative frequency

Worked example

Draw a cumulative frequency diagram for the data:

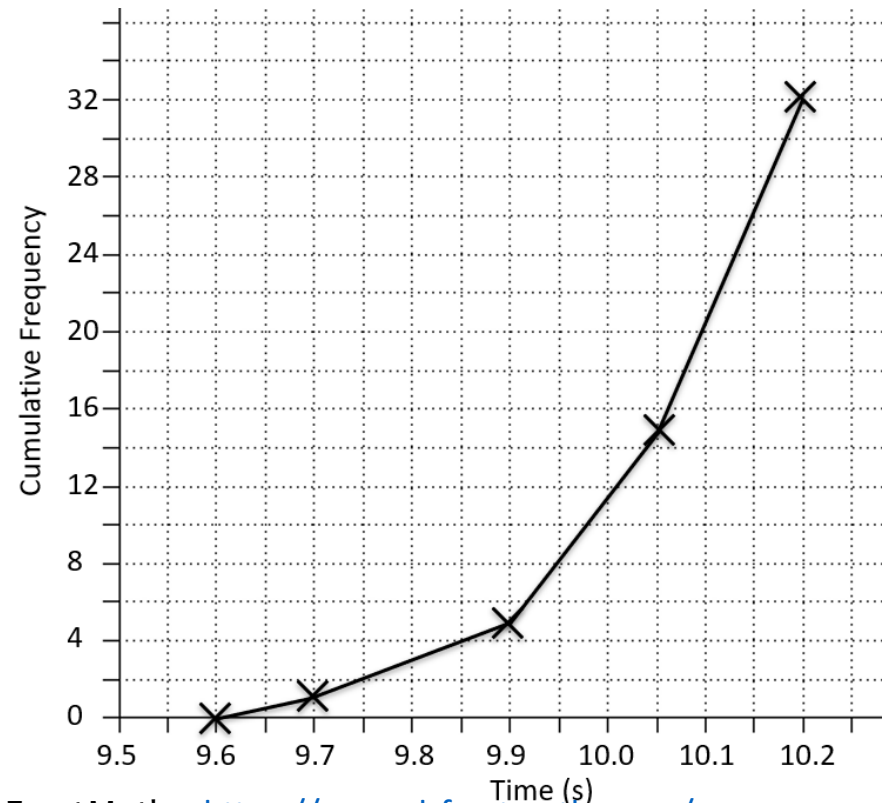
Time (s)	Frequency
$9.6 < t \leq 9.8$	3
$9.8 < t \leq 10.05$	7
$10.05 < t \leq 10.15$	8
$10.15 < t \leq 10.2$	14



Your turn

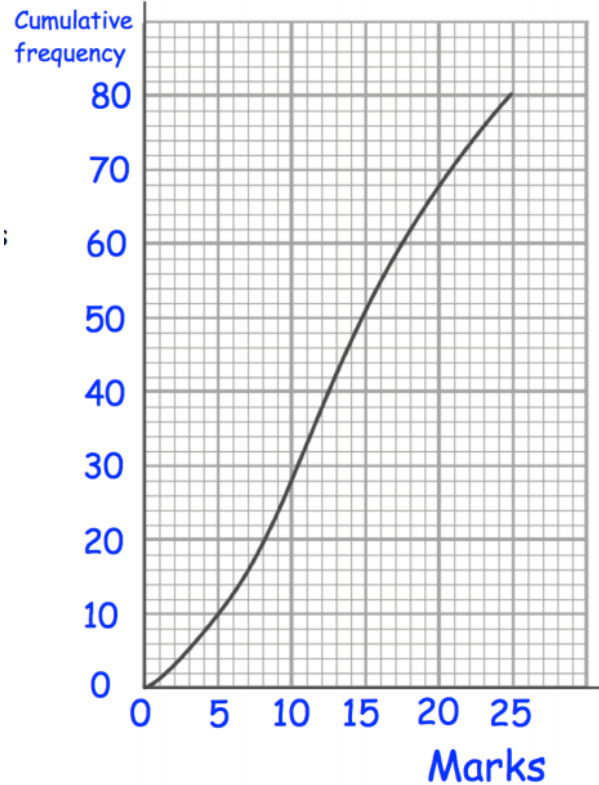
Draw a cumulative frequency diagram for the data:

Time (s)	Frequency
$9.6 < t \leq 9.7$	1
$9.7 < t \leq 9.9$	4
$9.9 < t \leq 10.05$	10
$10.05 < t \leq 10.2$	17



Worked example

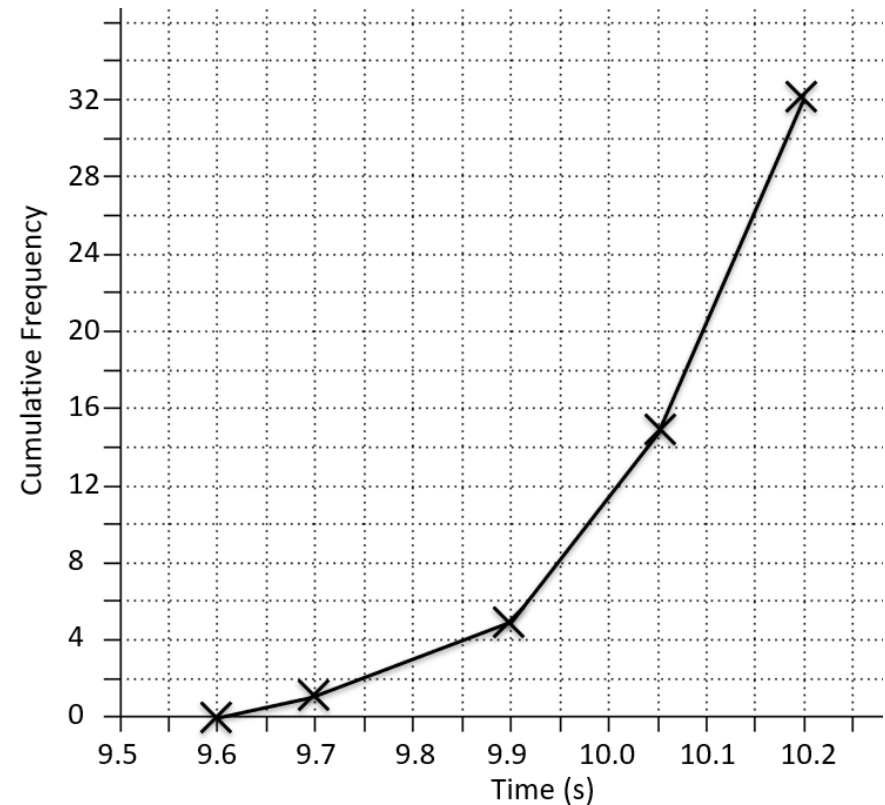
Use the cumulative frequency diagram to estimate the:



- Lower quartile
- Median
- Upper quartile
- 60th percentile

Your turn

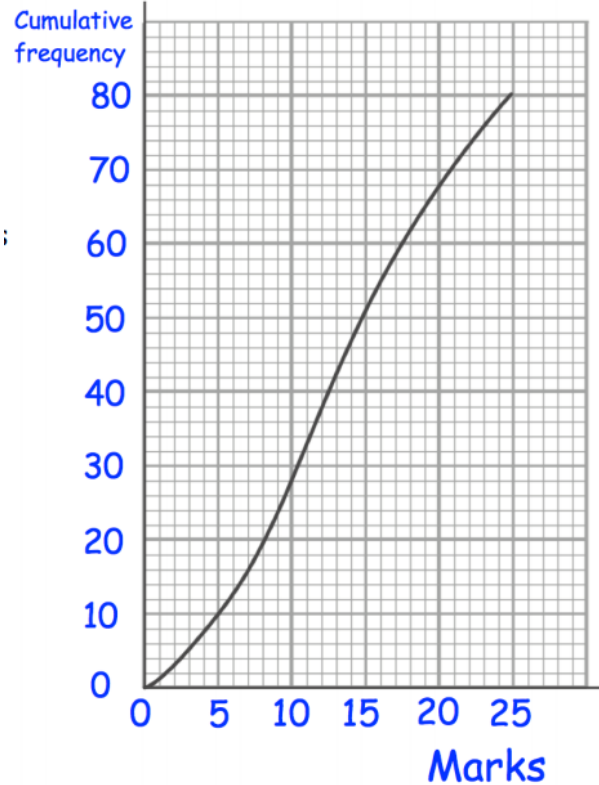
Use the cumulative frequency diagram to estimate the:



- Lower quartile **9.95 s**
- Median **10.07 s**
- Upper quartile **10.13 s**
- 90th percentile **10.17 s**

Worked example

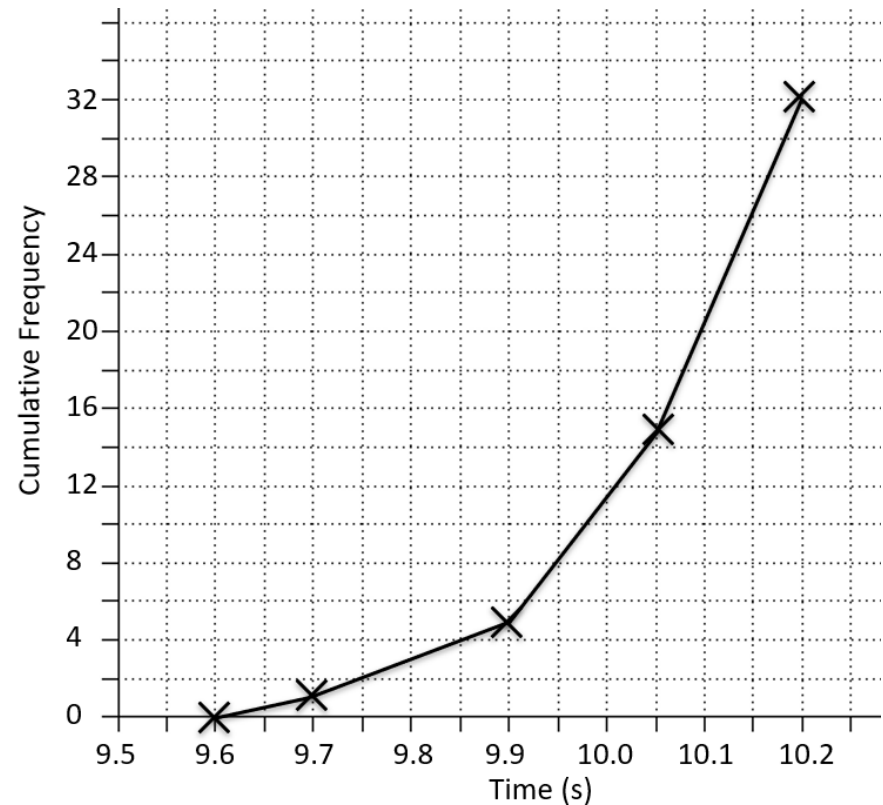
Use the cumulative frequency diagram to estimate the:



- Interquartile range
- 10^{th} – 90^{th} interpercentile range

Your turn

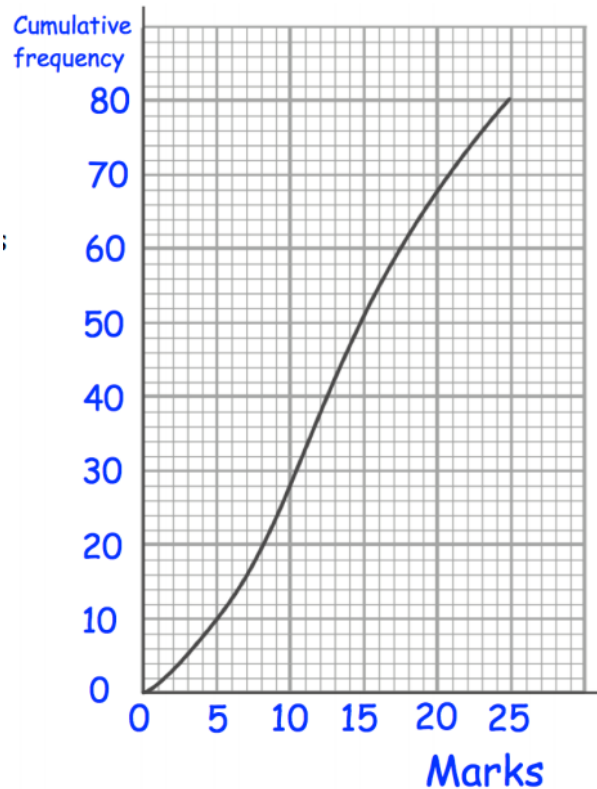
Use the cumulative frequency diagram to estimate the:



- Interquartile range **0.18 s**
- 20^{th} – 80^{th} interpercentile range **0.21 s**

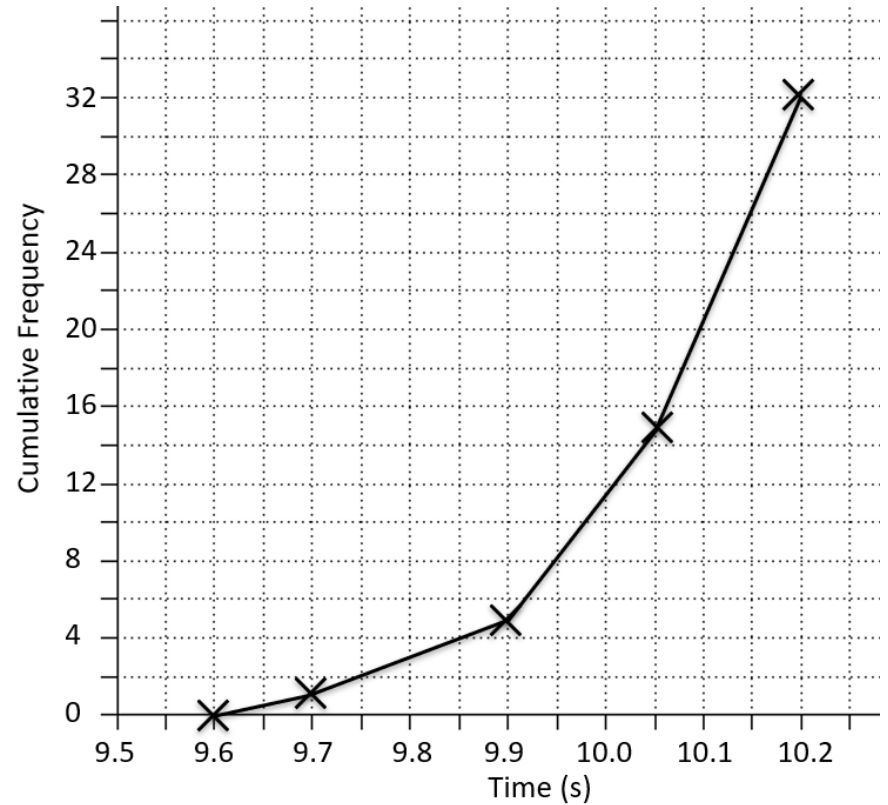
Worked example

Use the cumulative frequency diagram to estimate the number of students who achieved fewer than 23 marks.



Your turn

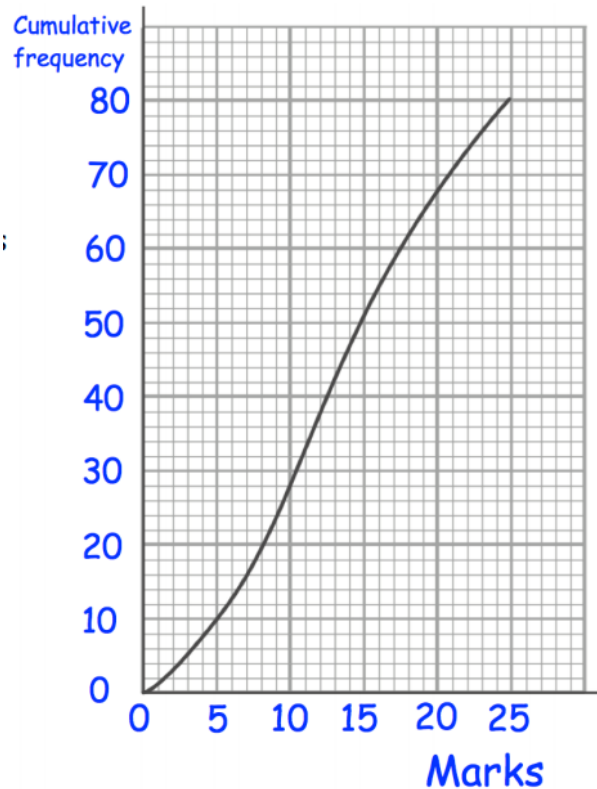
Use the cumulative frequency diagram to estimate the number of runners who had a time less than 10.15 seconds.



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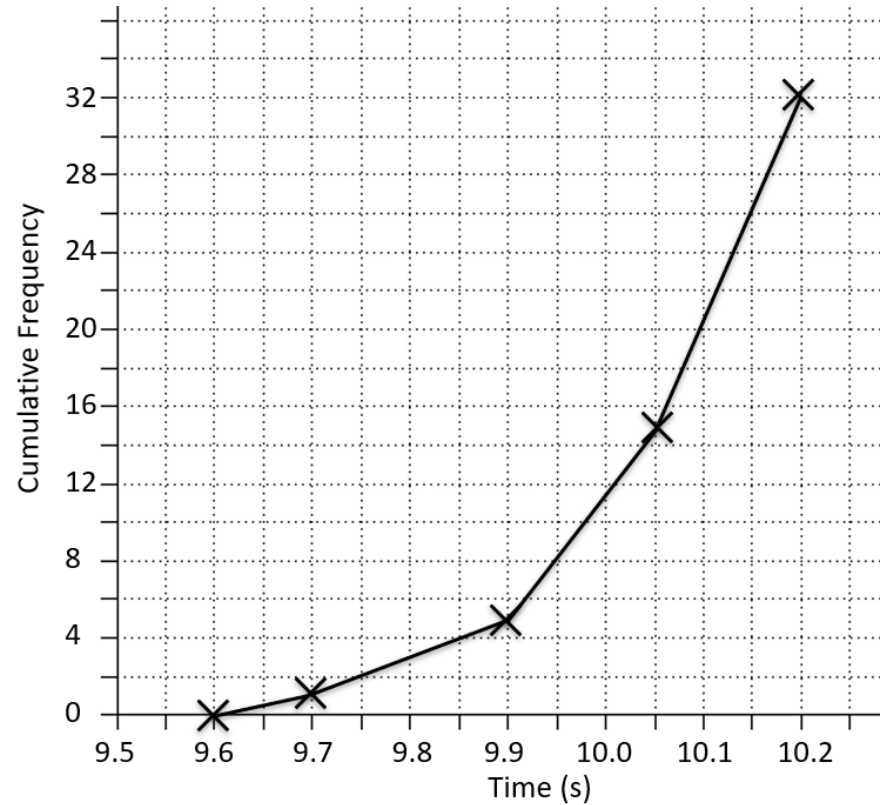
Worked example

Use the cumulative frequency diagram to estimate the number of students who achieved more than 12 marks.



Your turn

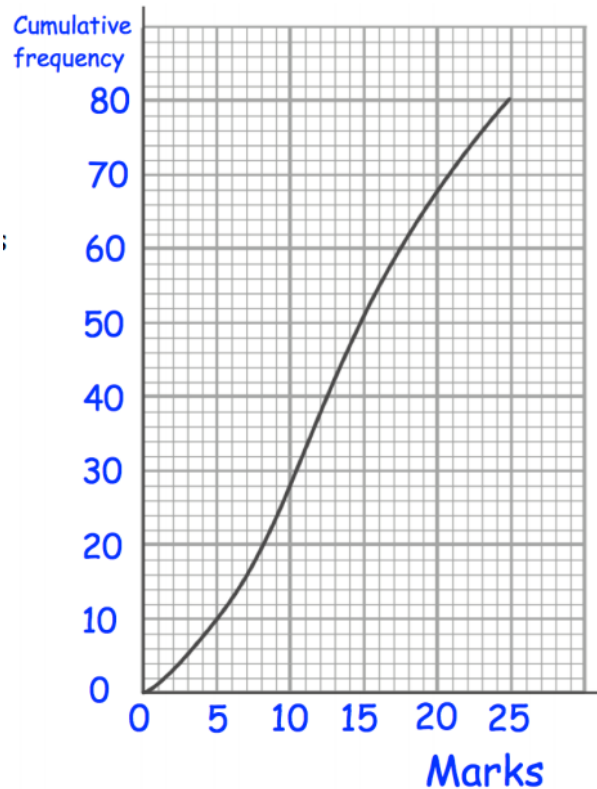
Use the cumulative frequency diagram to estimate the number of runners who had a time greater than 9.95 seconds.



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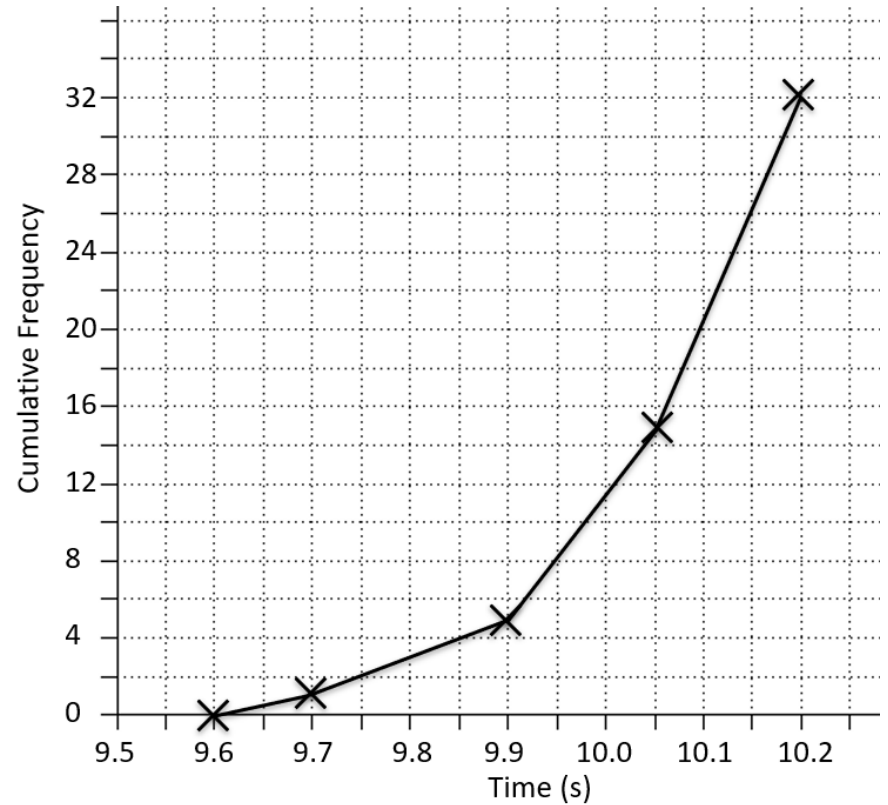
Worked example

Use the cumulative frequency diagram to estimate the number of students who achieved between 7 and 21 marks.



Your turn

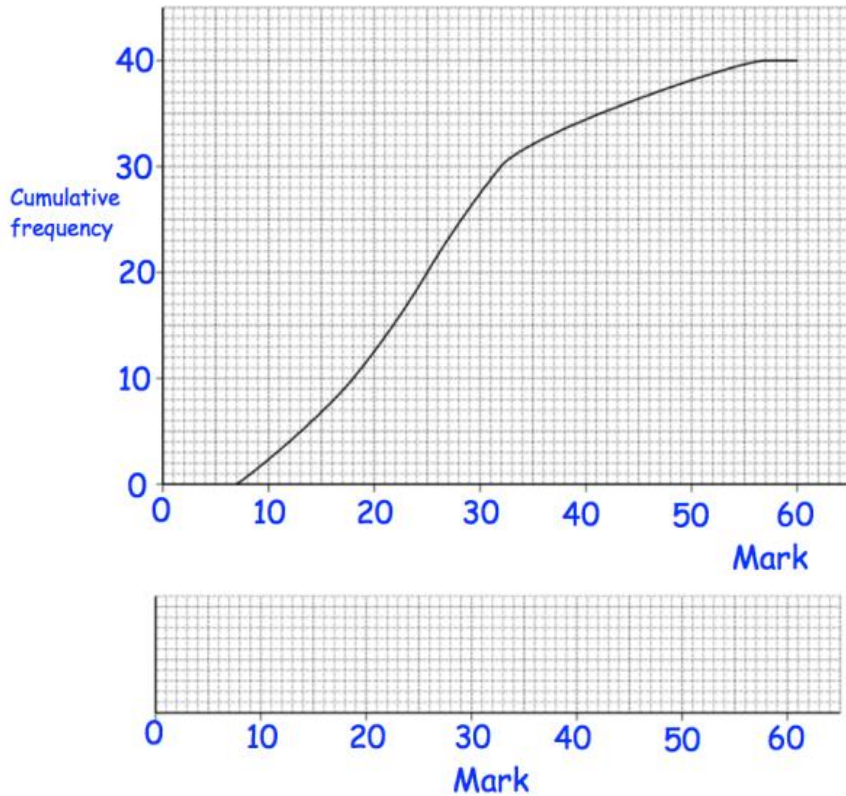
Use the cumulative frequency diagram to estimate the number of runners who had a time between 9.8 and 10 seconds.



8

Worked example

Use the cumulative frequency diagram to draw a box plot:



Your turn

Use the cumulative frequency diagram to draw a box plot:

