

LO: Represent data using a cumulative frequency graph.

The marks for 24 pupils in a test were as follows:

23, 24, 34, 45, 56, 23, 57, 41, 37, 65, 17, 26, 35, 44, 33, 48, 19, 61, 58, 55, 49, 44, 57, 41.

Step 1: Put the data in order. A stem and leaf diagram may help.

1  
2  
3  
4  
5  
6

Key:

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Step 2: Put the data in a table with groups.

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

Key: 1|7 = 17

Mark ( $m$ )	Frequency	
$10 \leq m < 20$		
$20 \leq m < 30$		
$30 \leq m < 40$		
$40 \leq m < 50$		
$50 \leq m < 60$		
$60 \leq m < 70$		

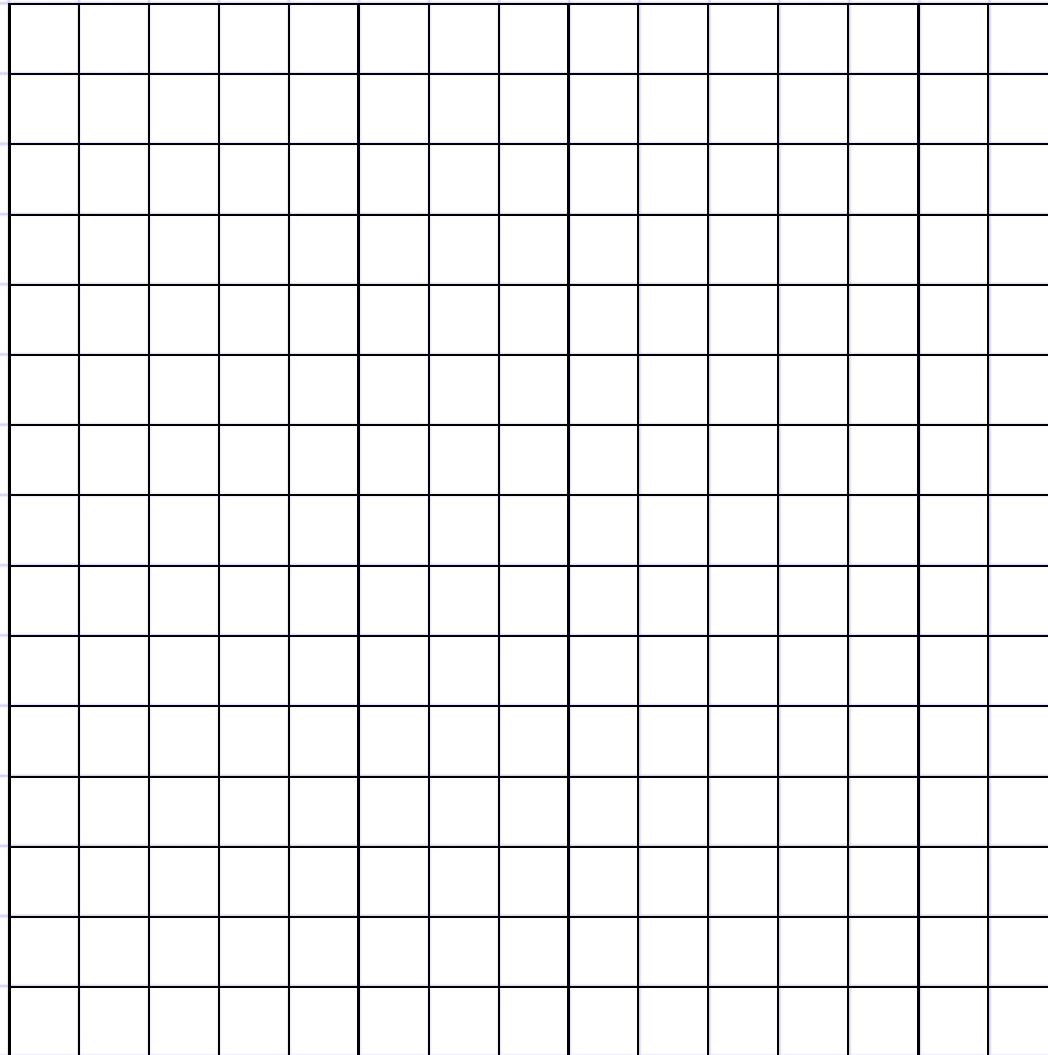
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Step 3: Calculate the cumulative frequency (running total).

Mark ( $m$ )	Frequency	Cumulative frequency
$10 \leq m < 20$	2	
$20 \leq m < 30$	4	
$30 \leq m < 40$	4	
$40 \leq m < 50$	7	
$50 \leq m < 60$	5	
$60 \leq m < 70$	2	

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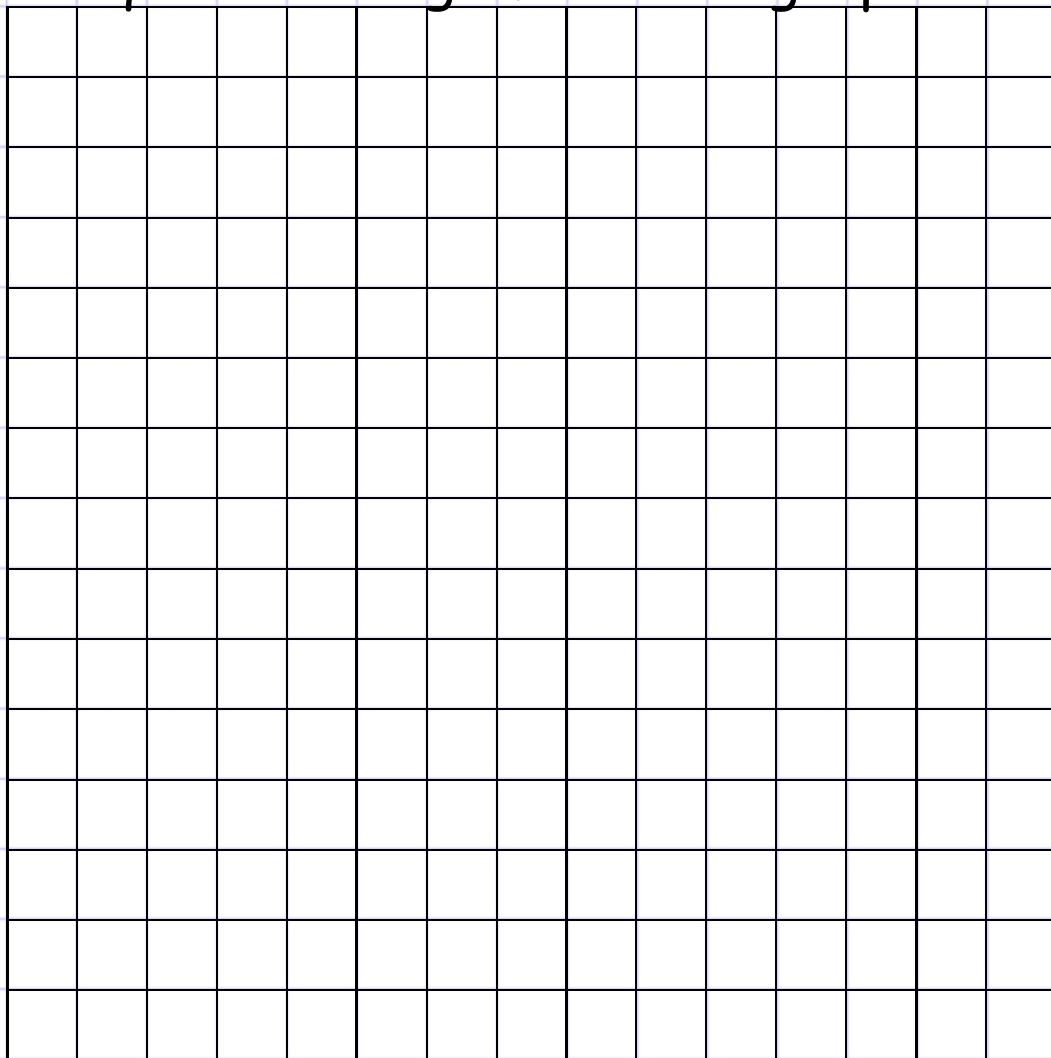
Step 4: Plot the graph. Use the endpoint in the data column.



Mark ( $m$ )	F	CF
$10 \leq m < 20$	2	2
$20 \leq m < 30$	4	6
$30 \leq m < 40$	4	10
$40 \leq m < 50$	7	17
$50 \leq m < 60$	5	22
$60 \leq m < 70$	2	24

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Step 5: Work out the median, lower quartile, upper quartile and inter-quartile range from the graph.



Median =

Lower quartile =

Upper quartile =

IQR =