

Section I – Multiple choice

1 What is the class centre for the class 85–89?

- A 4 B 85
C 87 D 89

2 What is the cumulative frequency of class 95–99?

- A 6 B 9
C 15 D 99

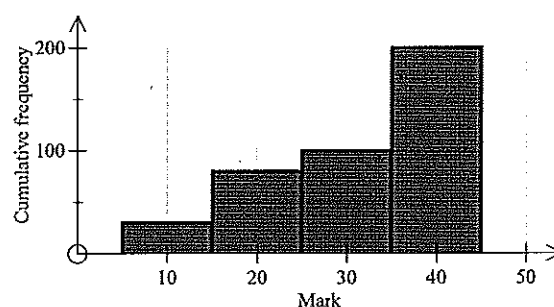
Class	Frequency	Cumulative Frequency
80–84	2	
85–89	4	
90–94	3	
95–99	6	

3 Find the interquartile range of this data: 15, 15, 16, 14, 12, 18, 20, 22, 52, 28.

- A 7 B 10 C 15 D 22

4 What is the total number of marks?

- A 50 B 100
C 150 D 200

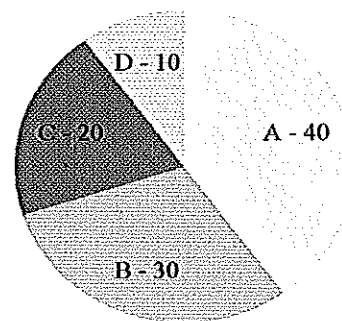


5 What is the frequency of 40?

- A 0 B 10
C 100 D 200

6 A, B, C and D represent the answers to a survey question. If 300 people completed the survey, how many people selected answer D?

- A 10 B 30
C 270 D 300



7 What is the size of the angle used for C in the sector graph?

- A 18° B 36°
C 54° D 72°

8 A box-and-whisker plot has a lower extreme of 17, lower quartile of 24, median of 30, upper quartile of 35 and upper extreme of 39. What is the range of data?

- A 9 B 18 C 22 D 30

Topic Test 7 **Displaying and interpreting single data sets**

Section II — Short answer

1 Patrick walked each day and recorded the following times (in minutes) to complete the journey.

34 33 36 33 33 37 32 37 34 32 33 37 33 36 37 33 33
 32 35 33 36 34 36 33 36 32 32 35 34 37 36 36 34 35

- a Construct a frequency table using a tally column. Add a cumulative frequency column.
- b Construct a cumulative frequency histogram.

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2 The stem-and-leaf plot represents the ages of people at a movie.

- a What is the range of these ages?
- b What is the first quartile?
- c What is the third quartile?

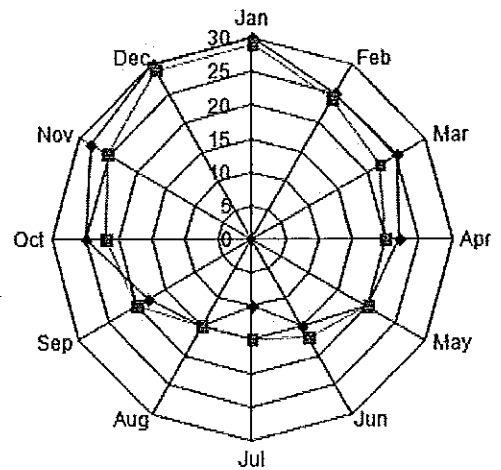
0	8
1	3355
2	025668
3	0123

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3 The radar chart shows the average monthly temperatures for Penrith —●— and Manly —■—.

- a What is the average monthly temperature for Penrith in April?
- b What is the average monthly temperature for Manly in October?
- c Which month had the minimum temperature for Penrith?
- d What is the difference in temperatures between Penrith and Manly in March?
- e Which months have the same average monthly temperatures?



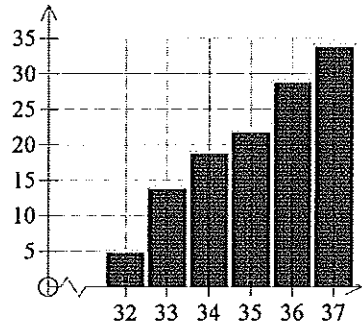
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Topic Test 7 Displaying and interpreting single data sets

Worked solutions

Section 1	Solution	Answer															
1	Class centre = $\frac{85 + 89}{2} = 87$	C															
2	<p>Cumulative frequency is 15</p> <table border="1"> <thead> <tr> <th>Class</th> <th>Frequency</th> <th>Cumulative Frequency</th> </tr> </thead> <tbody> <tr> <td>80–84</td> <td>2</td> <td>2</td> </tr> <tr> <td>85–89</td> <td>4</td> <td>6</td> </tr> <tr> <td>90–94</td> <td>3</td> <td>9</td> </tr> <tr> <td>95–99</td> <td>6</td> <td>15</td> </tr> </tbody> </table>	Class	Frequency	Cumulative Frequency	80–84	2	2	85–89	4	6	90–94	3	9	95–99	6	15	C
Class	Frequency	Cumulative Frequency															
80–84	2	2															
85–89	4	6															
90–94	3	9															
95–99	6	15															
3	<p>12, 14, 15, 15, 16, 18, 20, 22, 28, 52</p> <p>$IQR = Q_3 - Q_1$ $= 22 - 15 = 7$</p>	A															
4	<p>Cumulative frequency for 40 is 200. Total number of marks is 200.</p>	D															
5	<p>Frequency = $200 - 100$ $= 100$</p>	C															
6	<p>Number of people = $\frac{10}{100} \times 300$ $= 30$</p>	B															
7	<p>Angle size = $\frac{20}{100} \times 360^\circ$ $= 72^\circ$</p>	D															
8	<p>Range = Upper extreme – Lower extreme $= 39 - 17$ $= 22$</p>	C															

Section II	Solution			
1a	Score	Tally	Freq	Cum Freq
	32		5	5
	33		9	14
	34		5	19
	35		3	22
	36		7	29
	37		5	34
1b				
2a	Range = $33 - 8$ = 25			
2b	8, 13, 13, 15, 15, 20, 22, 25 , 26, 26, 28, 30, 31, 32, 33 $Q_1 = 15$			
2c	8, 13, 13, 15, 15, 20, 22, 25 , 26, 26, 28, 30 , 31, 32, 33 $Q_3 = 30$			
3a	Average monthly temperature for Penrith in April is 23			
3b	Average monthly temperature for Manly in October is 22			
3c	July has the minimum temperature for Penrith			
3d	Temperature difference = $25 - 22$ = 3			
3e	May and August have the same average monthly temperatures.			