# 6.8 Grouped Data and the Estimated Mean: 2-hour Pack

Calculators not allowed · about 120 minutes

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** The scores of 17 players in a game are: 28, 22, 21, 21, 32, 20, 30, 33, 26, 26, 34, 22, 29, 26, 27, 30, 28.
Complete a grouped frequency table using the class intervals 20 to 24, 25 to 29 and 30 to 34.

**(3)**

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**2** The grouped frequency table shows the score of 34 people. 10 to 14: 12; 15 to 19: 8; 20 to 24: 5; 25 to 29: 4; 30 to 34: 5.
Write down the modal class.

**(1)**

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**3** The grouped frequency table shows the mass in kg of 34 people. 50 to 59: 3; 60 to 69: 7; 70 to 79: 12; 80 to 89: 12.
Work out an estimate of the mean.

**(4)**


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**4** The grouped frequency table shows the score of 39 people. 20 to 24: 7; 25 to 29: 4; 30 to 34: 8; 35 to 39: 12; 40 to 44: 8.
Work out which class contains the median.

**(3)**

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**5** The table shows the number of books read for a group of people.
number of books read = 2: frequency 6; number of books read = 3: frequency 12; number of books read = 4: frequency 7; number of books read = 5: frequency 8; number of books read = 6: frequency 9.
Work out the total frequency and the mode.

**(2)**

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**6** The table shows the number of pets for a group of people.
number of pets = 2: frequency 12; number of pets = 3: frequency 12; number of pets = 4: frequency 9; number of pets = 5: frequency 10.
Work out the median.

**(3)**

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**7** The table shows the number of pets for a group of people.
number of pets = 0: frequency 4; number of pets = 1: frequency 7; number of pets = 2: frequency 11; number of pets = 3: frequency 6; number of pets = 4: frequency 6; number of pets = 5: frequency 9.
Work out the range.

**(2)**


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**8** The grouped frequency table shows the mass in kg of 30 people. 20 to 29: 4; 30 to 39: 2; 40 to 49: 7; 50 to 59: 11; 60 to 69: 6.
Work out which class contains the median.

**(3)**

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**9** The scores of 16 players in a game are: 40, 33, 39, 44, 43, 31, 43, 37, 40, 38, 33, 43, 39, 33, 33, 33.
Complete a grouped frequency table using the class intervals 30 to 34, 35 to 39 and 40 to 44.

**(3)**

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**10** The table shows the number of goals for a group of people.
number of goals = 2: frequency 3; number of goals = 3: frequency 4; number of goals = 4: frequency 10; number of goals = 5: frequency 3; number of goals = 6: frequency 12.
Work out the range.

**(2)**

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**11** The scores of 17 players in a game are: 13, 18, 13, 12, 18, 8, 12, 4, 28, 2, 25, 9, 21, 25, 7, 19, 25.
Complete a grouped frequency table using the class intervals 0 to 9, 10 to 19 and 20 to 29.

**(3)**


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**12** The table shows the number of books read for a group of people.
number of books read = 0: frequency 12; number of books read = 1: frequency 11; number of books read = 2: frequency 5; number of books read = 3: frequency 7; number of books read = 4: frequency 9.
Work out the range.

**(2)**

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**13** The table shows the number of pets for a group of people.
number of pets = 1: frequency 6; number of pets = 2: frequency 12; number of pets = 3: frequency 9; number of pets = 4: frequency 8; number of pets = 5: frequency 11.
Work out the median.

**(3)**

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**14** The grouped frequency table shows the mass in kg of 45 people. 50 to 54: 13; 55 to 59: 12; 60 to 64: 13; 65 to 69: 7.
Work out which class contains the median.

**(3)**

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**15** The grouped frequency table shows the score of 56 people. 50 to 54: 13; 55 to 59: 5; 60 to 64: 14; 65 to 69: 12; 70 to 74: 12.
Write down the modal class.

**(1)**


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**16** The grouped frequency table shows the mass in kg of 31 people. 10 to 19: 9; 20 to 29: 7; 30 to 39: 4; 40 to 49: 11.
Work out which class contains the median.

**(3)**

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**17** The table shows the number of pets for a group of people.
number of pets = 1: frequency 2; number of pets = 2: frequency 9; number of pets = 3: frequency 2; number of pets = 4: frequency 3; number of pets = 5: frequency 4.
Work out the range.

**(2)**

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**18** The table shows the number of books read for a group of people.
number of books read = 2: frequency 1; number of books read = 3: frequency 10; number of books read = 4: frequency 6; number of books read = 5: frequency 1.
Work out the median.

**(3)**

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**19** The grouped frequency table shows the time in seconds of 42 people. 10 to 19: 13; 20 to 29: 7; 30 to 39: 8; 40 to 49: 14.
Write down the modal class.

**(1)**


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**20** The scores of 16 players in a game are: 25, 24, 29, 34, 32, 21, 27, 31, 22, 31, 24, 22, 28, 23, 22, 34.
Complete a grouped frequency table using the class intervals 20 to 24, 25 to 29 and 30 to 34.

**(3)**

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**21** Work out the midpoint and show how it is used to estimate the mean for a single class with its frequency.
Class 70-79 with frequency 4.

**(a)** Find the midpoint and the contribution to total fx. **(2)**

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**22** The scores of 16 players in a game are: 11, 5, 1, 13, 3, 1, 9, 2, 0, 13, 13, 12, 8, 14, 13, 2.
Complete a grouped frequency table using the class intervals 0 to 4, 5 to 9 and 10 to 14.

**(3)**

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**23** The table shows the number of pets for a group of people.
number of pets = 2: frequency 2; number of pets = 3: frequency 5; number of pets = 4: frequency 10; number of pets = 5: frequency 2; number of pets = 6: frequency 6.
Work out the range.

**(2)**


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**24** The grouped frequency table shows the score of 44 people. 50 to 54: 11; 55 to 59: 14; 60 to 64: 13; 65 to 69: 6.
Work out which class contains the median.

**(3)**

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**25** The scores of 14 players in a game are: 20, 34, 34, 31, 34, 34, 32, 31, 24, 31, 29, 30, 24, 29.
Complete a grouped frequency table using the class intervals 20 to 24, 25 to 29 and 30 to 34.

**(3)**

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**26** The scores of 13 players in a game are: 7, 25, 27, 10, 11, 13, 11, 17, 5, 15, 7, 25, 18.
Complete a grouped frequency table using the class intervals 0 to 9, 10 to 19 and 20 to 29.

**(3)**

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**27** The grouped frequency table shows the time in seconds of 27 people. 0 to 9: 4; 10 to 19: 11; 20 to 29: 6; 30 to 39: 6.
Work out which class contains the median.

**(3)**


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**28** The scores of 14 players in a game are: 59, 43, 30, 37, 37, 40, 51, 56, 41, 43, 34, 33, 48, 51.
Complete a grouped frequency table using the class intervals 30 to 39, 40 to 49 and 50 to 59.

**(3)**

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**29** The table shows the number of goals for a group of people.
number of goals = 3: frequency 1; number of goals = 4: frequency 9; number of goals = 5: frequency 3; number of goals = 6: frequency 8; number of goals = 7: frequency 2.
Work out the median.

**(3)**

---

**30** The scores of 12 players in a game are: 39, 25, 18, 12, 33, 27, 10, 22, 39, 32, 31, 12.
Complete a grouped frequency table using the class intervals 10 to 19, 20 to 29 and 30 to 39.

**(3)**

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**31** The grouped frequency table shows the time in seconds of 33 people. 10 to 19: 4; 20 to 29: 6; 30 to 39: 9; 40 to 49: 14.
Work out which class contains the median.

**(3)**


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**32** The scores of 17 players in a game are: 12, 17, 16, 19, 15, 14, 21, 15, 11, 16, 12, 11, 12, 16, 13, 13, 16.
Complete a grouped frequency table using the class intervals 10 to 14, 15 to 19 and 20 to 24.

**(3)**

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**33** The scores of 17 players in a game are: 38, 47, 43, 47, 24, 44, 38, 23, 26, 49, 22, 48, 22, 23, 24, 40, 24.
Complete a grouped frequency table using the class intervals 20 to 29, 30 to 39 and 40 to 49.

**(3)**

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**34** The scores of 14 players in a game are: 8, 14, 28, 18, 24, 25, 13, 20, 15, 2, 4, 1, 0, 21.
Complete a grouped frequency table using the class intervals 0 to 9, 10 to 19 and 20 to 29.

**(3)**

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**35** The scores of 18 players in a game are: 17, 24, 30, 27, 31, 14, 12, 38, 16, 13, 15, 20, 25, 39, 35, 10, 11, 32.
Complete a grouped frequency table using the class intervals 10 to 19, 20 to 29 and 30 to 39.

**(3)**


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# Mark scheme · 6.8 Grouped Data and the Estimated Mean: 2-hour Pack

## Question 1

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 20 to 24: 5, 25 to 29: 7, 30 to 34: 5 cao | A1 |

Answer: **20 to 24: 5, 25 to 29: 7, 30 to 34: 5**

## Question 2

| | |
|---|---|
| 10 to 14 cao | B1 |

Answer: **10 to 14**

## Question 3

| | |
|---|---|
| uses midpoints of the classes | M1 |
| multiplies midpoints by frequencies | M1 |
| total fx = 2523 divided by 34 | M1 |
| 74.2 cao | A1 |

Answer: **74.2**

## Question 4

| | |
|---|---|
| median position 20 | M1 |
| cumulative frequency | M1 |
| 35 to 39 cao | A1 |

Answer: **35 to 39**

## Question 5

| | |
|---|---|
| total 42 | B1 |
| mode 3 | B1 |

Answer: **total 42, mode 3**

## Question 6

| | |
|---|---|
| 43 values in total, median at position 22 | M1 |
| cumulative frequency used | M1 |
| 3 cao | A1 |

Answer: **3**

## Question 7

| | |
|---|---|
| 5 - 0 | M1 |
| 5 cao | A1 |

Answer: **5**

## Question 8

| | |
|---|---|
| median position 15.5 | M1 |
| cumulative frequency | M1 |
| 50 to 59 cao | A1 |

Answer: **50 to 59**

## Question 9

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 30 to 34: 6, 35 to 39: 4, 40 to 44: 6 cao | A1 |

Answer: **30 to 34: 6, 35 to 39: 4, 40 to 44: 6**

## Question 10

| | |
|---|---|
| 6 - 2 | M1 |
| 4 cao | A1 |

Answer: **4**

## Question 11

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 0 to 9: 5, 10 to 19: 7, 20 to 29: 5 cao | A1 |

Answer: **0 to 9: 5, 10 to 19: 7, 20 to 29: 5**

## Question 12

| | |
|---|---|
| 4 - 0 | M1 |
| 4 cao | A1 |

Answer: **4**

## Question 13

| | |
|---|---|
| 46 values in total, median at position 23.5 | M1 |
| cumulative frequency used | M1 |
| 3 cao | A1 |

Answer: **3**

## Question 14

| | |
|---|---|
| median position 23 | M1 |
| cumulative frequency | M1 |
| 55 to 59 cao | A1 |

Answer: **55 to 59**

## Question 15

| | |
|---|---|
| 60 to 64 cao | B1 |

Answer: **60 to 64**

## Question 16

| | |
|---|---|
| median position 16 | M1 |
| cumulative frequency | M1 |
| 20 to 29 cao | A1 |

Answer: **20 to 29**

## Question 17

| | |
|---|---|
| 5 - 1 | M1 |
| 4 cao | A1 |

Answer: **4**

## Question 18

| | |
|---|---|
| 18 values in total, median at position 9.5 | M1 |
| cumulative frequency used | M1 |
| 3 cao | A1 |

Answer: **3**

## Question 19

| | |
|---|---|
| 40 to 49 cao | B1 |

Answer: **40 to 49**

## Question 20

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 20 to 24: 7, 25 to 29: 4, 30 to 34: 5 cao | A1 |

Answer: **20 to 24: 7, 25 to 29: 4, 30 to 34: 5**


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## Question 21

| | |
|---|---|
| (a) midpoint 74.5 and multiply by frequency | M1 |
| (a) midpoint 74.5; fx contribution 74.5 * 4 = 298 cao | A1 |

(a) Answer: **Midpoint 74.5; contribution 298**

## Question 22

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 0 to 4: 6, 5 to 9: 3, 10 to 14: 7 cao | A1 |

Answer: **0 to 4: 6, 5 to 9: 3, 10 to 14: 7**

## Question 23

| | |
|---|---|
| 6 - 2 | M1 |
| 4 cao | A1 |

Answer: **4**

## Question 24

| | |
|---|---|
| median position 22.5 | M1 |
| cumulative frequency | M1 |
| 55 to 59 cao | A1 |

Answer: **55 to 59**

## Question 25

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 20 to 24: 3, 25 to 29: 2, 30 to 34: 9 cao | A1 |

Answer: **20 to 24: 3, 25 to 29: 2, 30 to 34: 9**

## Question 26

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 0 to 9: 3, 10 to 19: 7, 20 to 29: 3 cao | A1 |

Answer: **0 to 9: 3, 10 to 19: 7, 20 to 29: 3**

## Question 27

| | |
|---|---|
| median position 14 | M1 |
| cumulative frequency | M1 |
| 10 to 19 cao | A1 |

Answer: **10 to 19**

## Question 28

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 30 to 39: 5, 40 to 49: 5, 50 to 59: 4 cao | A1 |

Answer: **30 to 39: 5, 40 to 49: 5, 50 to 59: 4**

## Question 29

| | |
|---|---|
| 23 values in total, median at position 12 | M1 |
| cumulative frequency used | M1 |
| 5 cao | A1 |

Answer: **5**

## Question 30

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 10 to 19: 4, 20 to 29: 3, 30 to 39: 5 cao | A1 |

Answer: **10 to 19: 4, 20 to 29: 3, 30 to 39: 5**

## Question 31

| | |
|---|---|
| median position 17 | M1 |
| cumulative frequency | M1 |
| 30 to 39 cao | A1 |

Answer: **30 to 39**

## Question 32

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 10 to 14: 8, 15 to 19: 8, 20 to 24: 1 cao | A1 |

Answer: **10 to 14: 8, 15 to 19: 8, 20 to 24: 1**

## Question 33

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 20 to 29: 8, 30 to 39: 2, 40 to 49: 7 cao | A1 |

Answer: **20 to 29: 8, 30 to 39: 2, 40 to 49: 7**

## Question 34

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 0 to 9: 5, 10 to 19: 4, 20 to 29: 5 cao | A1 |

Answer: **0 to 9: 5, 10 to 19: 4, 20 to 29: 5**

## Question 35

| | |
|---|---|
| tally or count of at least one class | M1 |
| two frequencies correct | A1 |
| 10 to 19: 8, 20 to 29: 4, 30 to 39: 6 cao | A1 |

Answer: **10 to 19: 8, 20 to 29: 4, 30 to 39: 6**


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