6.8 Grouped Data and the Estimated Mean: 30-minute Pack

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The scores of 12 players in a game are: 37, 39, 25, 26, 43, 27, 24, 33, 38, 30, 40, 45.
Complete a grouped frequency table using the class intervals 20 to 29, 30 to 39 and 40 to 49.

(3)

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2 The grouped frequency table shows the mass in kg of 49 people. 50 to 54: 8; 55 to 59: 11; 60 to 64: 7; 65 to 69: 14; 70 to 74: 9.
Write down the modal class.

(1)

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3 The grouped frequency table shows the mass in kg of 34 people. 0 to 4: 6; 5 to 9: 4; 10 to 14: 5; 15 to 19: 11; 20 to 24: 8.
Work out which class contains the median.

(3)

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4 The grouped frequency table shows the mass in kg of 46 people. 20 to 24: 15; 25 to 29: 7; 30 to 34: 5; 35 to 39: 10; 40 to 44: 9.
Work out an estimate of the mean.

(4)

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5 Give the midpoints of these class intervals.

(a) Find the midpoint of 20-24. **(1)**

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(b) Find the midpoint of 35-39. **(1)**

.....

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6 The scores of 13 players in a game are: 12, 11, 11, 22, 16, 18, 21, 14, 20, 11, 14, 23, 19.
Complete a grouped frequency table using the class intervals 10 to 14, 15 to 19 and 20 to 24.

(3)

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7 Identify the modal class and explain how you know. Then estimate the mean using midpoints.
Class intervals and frequencies: 0-9 (4), 10-19 (14), 20-29 (9), 30-39 (3).

(a) State the modal class and give a brief reason. **(1)**

(b) Estimate the mean for the data above using midpoints. **(3)**

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8 A frequency table is given. Complete the table by finding the missing frequency and then find the estimated mean.
Class intervals: 40-49 (7), 50-59 (k), 60-69 (5). Total number of items is 20.

(a) Find k. **(1)**

(b) Using midpoints, estimate the mean for the completed table. **(2)**

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Mark scheme · 6.8 Grouped Data and the Estimated Mean: 30-minute Pack

Question 1

tally or count of at least one class	M1
two frequencies correct	A1
20 to 29: 4, 30 to 39: 5, 40 to 49: 3 cao	A1

Answer: **20 to 29: 4, 30 to 39: 5, 40 to 49: 3**

Question 2

65 to 69 cao	B1

Answer: **65 to 69**

Question 3

median position 17.5	M1
cumulative frequency	M1
15 to 19 cao	A1

Answer: **15 to 19**

Question 4

uses midpoints of the classes	M1
multiplies midpoints by frequencies	M1
total fx = 1427 divided by 46	M1
31 cao	A1

Answer: **31**

Question 5

(a) 22 cao	B1

(a) Answer: **22**

(b) 37 cao	B1

(b) Answer: **37**

Question 6

tally or count of at least one class	M1
two frequencies correct	A1
10 to 14: 6, 15 to 19: 3, 20 to 24: 4 cao	A1

Answer: **10 to 14: 6, 15 to 19: 3, 20 to 24: 4**

Question 7

(a) 10-19, it has the highest frequency	B1

(a) Answer: **10-19**

(b) midpoints 4.5, 14.5, 24.5, 34.5 used and fx method shown	M1
(b) correct total fx: 4.5*4 + 14.5*14 + 24.5*9 + 34.5*3 = 18 + 203 + 220.5 + 103.5 = 545	M1
(b) mean = 545 / 30 = 18.166... so 18.2 to 1 dp cao	A1

(b) Answer: **18.2**

Question 8

(a) k = 8 cao	B1

(a) Answer: **8**

(b) midpoints 44.5, 54.5, 64.5 used and fx calculated: 44.5*7 + 54.5*8 + 64.5*5	M1
(b) mean = (311.5 + 436 + 322.5) / 20 = 1070 / 20 = 53.5 cao	A1

(b) Answer: **53.5**

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