EP.M125 Bar Charts and Pictograms in Depth

Total Marks

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 55 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A bar chart shows the number of books borrowed from the school library in one week. Monday 14, Tuesday 22, Wednesday 18, Thursday 9, Friday 16. Which day had the highest number borrowed?

- ☐ A) Monday
- ☐ B) Tuesday
- ☐ C) Wednesday
- ☐ D) Thursday
- ☐ E) Friday

(Total for Question 1 is 1 mark)

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2 A pictogram shows the number of story books on three shelves. The key says 1 book icon = 5 books. Shelf A has 3 book icons. Shelf B has 2 book icons. Shelf C has 4 book icons. How many books are on Shelf B?

- ☐ A) 7
- ☐ B) 8
- ☐ C) 10
- ☐ D) 12
- ☐ E) 15

(Total for Question 2 is 1 mark)

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3 The bar chart shows how many blue and green pencils a shop sold in a week. Blue 72, Green 58. Work out how many more blue pencils were sold than green pencils.

(Total for Question 3 is 2 marks)

4 A school club chart shows the number of students attending each club: Choir 24, Football 36, Drama 18, Chess 12, Art 20.

(a) Calculate the total number of students attending a club. **(2)**

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(b) How many more students go to Football than to Drama? **(1)**

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(Total for Question 4 is 3 marks)

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5 In a pictogram each apple symbol represents 6 meals sold at the school cafe. Monday has 3 full apple symbols. Tuesday has 2 and a half apple symbols (two full and one half). Wednesday has 4 full apple symbols. How many meals were sold on Tuesday?

(Total for Question 5 is 2 marks)

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6 A bar chart compares apples and oranges sold. Apples 40, Oranges 30. The vertical axis of the chart starts at 20, which makes the difference look large. Using the real numbers, how many more apples than oranges were sold?

(Total for Question 6 is 2 marks)

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7 A bar chart of favourite fruit shows: Apples 9, Bananas 6, Cherries 4, Grapes 6. Which fruit is the mode of the data?

(Total for Question 7 is 1 mark)

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8 A bar chart shows toy sales over five days: Mon 12, Tue 18, Wed 15, Thu 21, Fri 24. Calculate the total sales for the week.

(Total for Question 8 is 2 marks)

9 A survey asked 60 pupils their favourite colour. The bar chart shows Blue 28, Red 14, Green 8, Yellow 10. What fraction of the pupils chose Blue? Give your answer in simplest form.

(Total for Question 9 is 2 marks)

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10 The bar chart shows four categories A, B, C and D with values 8, 16, 4 and 12 respectively. Which bar shows twice as many as category C?

- ☐ A) A
- ☐ B) B
- ☐ C) C
- ☐ D) D
- ☐ E) none of these

(Total for Question 10 is 1 mark)

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11 A charity sold small bags of sweets. In the pictogram 1 sweet symbol = 4 bags. Monday shows 7 symbols, Tuesday 5.5 symbols (five full and one half), Wednesday 9 symbols. Bags were packed into boxes that hold 6 bags each. How many full boxes could they fill from the total sold over the three days?

(Total for Question 11 is 3 marks)

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12 A bar chart shows visits to a museum in a week: Adult 45, Child 27. Give the ratio of Adult visits to Child visits in its simplest form.

(Total for Question 12 is 2 marks)

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13 A pictogram key states 1 star = 10 pupils. The pictogram shows 3 stars for Year 3. How many pupils does this represent?

(Total for Question 13 is 1 mark)

14 A charity has bar chart counts for donated tins: Soup 42, Beans 18, Tomatoes 30. If another 24 tins are donated for Beans, what will be the new number of Beans tins and the new total of all tins?

(Total for Question 14 is 2 marks)

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15 Five categories on a bar chart have a total of 100 items. Four of the categories have 18, 21, 10 and 25 items. Find the number of items in the fifth category.

(Total for Question 15 is 2 marks)

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16 A bar chart shows number of visitors to four events: A 20, B 18, C 22, D 20. Calculate the mean number of visitors per event, to 1 decimal place.

(Total for Question 16 is 2 marks)

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17 A survey bar chart shows the number of pupils who chose Swimming as their favourite sport is 28. If next year the number of pupils choosing Swimming increases by 25%, how many pupils will choose it next year?

(Total for Question 17 is 3 marks)

18 A pictogram shows tickets sold for four performances. Key: 1 ticket symbol = 20 tickets. A 3 symbols, B 4.5 symbols, C 5 symbols, D 2 symbols.
(a) Calculate the total number of tickets sold.
(b) What fraction of the total were tickets for performance C? Give your answer in simplest form.

(a) Calculate the total number of tickets sold. **(2)**

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(b) What fraction of the total were tickets for performance C? Simplify your answer. **(2)**

(Total for Question 18 is 4 marks)

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19 A bar chart shows cinema attendances over three days: Day 1 = 120, Day 2 = 90, Day 3 = 150. Which day had attendance closest to the mean attendance? (Mean = 120.)

- ☐ A) Day 1
- ☐ B) Day 2
- ☐ C) Day 3
- ☐ D) Day 1 and Day 2 equally
- ☐ E) Day 2 and Day 3 equally

(Total for Question 19 is 2 marks)

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20 A bar chart shows the number of apples collected in 4 baskets. The numbers are 14, 18, 10 and x. The mean number of apples per basket is 15. Find x.

(Total for Question 20 is 2 marks)

Mark scheme · EP.M125 Bar Charts and Pictograms in Depth

Question 1

- **B1** correct option B (Tuesday = 22) cao
- **Answer:B) Tuesday (22 books). (Correct option B.)**

Working check: Tuesday has 22 which is larger than 14, 18, 9 and 16 so it is the highest.

Question 2

- **B1** correct option C (10 books) cao
- **Answer:C) 10 books.**

Working check: Shelf B shows 2 icons; 2 x 5 = 10. Distractors: A/B are place-value or subtraction errors, D/E are misreading other shelves.

Question 3

- **M1** subtraction 72 - 58 or equivalent method seen
- **A1** 14 cao
- **Answer:14**

Working check: 72 - 58 = 14.

Question 4

- (a) **M1** addition of the numbers seen (24 + 36 + 18 + 12 + 20) oe
- (a) **A1** 110 cao
- **(a) Answer: 110**
- (b) **B1** 36 - 18 = 18 cao
- **(b) Answer: 18**

Question 5

- **M1** correct method 2.5 x 6 or equivalent seen
- **A1** 15 cao
- **Answer:15**

Working check: 2.5 x 6 = (2 x 6) + (0.5 x 6) = 12 + 3 = 15.

Question 6

- **M1** subtraction 40 - 30 or equivalent method seen
- **A1** 10 cao
- **Answer:10**

Working check: 40 - 30 = 10. The truncated axis is misleading, but the actual difference is 10.

Question 7

- **B1** Apples cao
- **Answer:Apples**

Working check: Apples occur most often (9), so mode = Apples.

Question 8

- **M1** addition of the five values (12 + 18 + 15 + 21 + 24) seen
- **A1** 90 cao
- **Answer:90**

Working check: 12 + 18 = 30, +15 = 45, +21 = 66, +24 = 90.

Question 9

- **M1** fraction 28/60 or equivalent seen
- **A1** 7/15 cao
- **Answer:7/15**

Working check: 28/60 divide top and bottom by 4 gives 7/15.

Question 10

- **B1** correct option A (8 is twice C's 4) cao
- **Answer:A) A**

Working check: Category C = 4, twice C = 8. Category A = 8, so A is the bar showing twice as many as C.

Question 11

- **M1** conversion to bags: 7 x 4 = 28, 5.5 x 4 = 22, 9 x 4 = 36 or equivalent
- **M1** addition to get total 28 + 22 + 36 = 86 seen
- **A1** 14 cao (86/6 = 14 r 2 so 14 full boxes)
- **Answer:14 full boxes**

Working check: Monday 7 x 4 = 28, Tuesday 5.5 x 4 = 22, Wednesday 9 x 4 = 36. Total 28 + 22 + 36 = 86. 86 ÷ 6 = 14 remainder 2 so 14 full boxes.

Question 12

- **M1** ratio 45:27 or equivalent seen
- **A1** 5:3 cao
- **Answer:5:3**

Working check: 45:27 divide both by 9 gives 5:3.

Question 13

- **B1** 30 cao
- **Answer:30**

Working check: 3 x 10 = 30 pupils.

Question 14

- **M1** adding 24 to Beans: 18 + 24 = 42 or equivalent
- **A1** Beans = 42 and total = 42 + 42 + 30 = 114 cao
- **Answer:Beans = 42, Total = 114**

Working check: Beans 18 + 24 = 42. Total = Soup 42 + Beans 42 + Tomatoes 30 = 114.

Question 15

- **M1** subtracting known sum from 100: 100 - (18 + 21 + 10 + 25) seen
- **A1** 26 cao
- **Answer:26**

Working check: Known sum = 18 + 21 + 10 + 25 = 74. 100 - 74 = 26.

Question 16

- **M1** correct total 20 + 18 + 22 + 20 = 80 and division by 4 seen
- **A1** 20.0 cao
- **Answer:20.0**

Working check: Total 80, mean = 80 / 4 = 20.0.

Question 17

- **M1** correct finding of 25% of 28 (=7) or equivalent
- **M1** adding 28 + 7 = 35 seen
- **A1** 35 cao
- **Answer:35**

Working check: 25% of 28 = 0.25 x 28 = 7. 28 + 7 = 35.

Question 18

- (a) **M1** convert each symbol to tickets: 3 x 20, 4.5 x 20, 5 x 20, 2 x 20 seen
- (a) **A1** 290 cao
- **(a) Answer: 290**
- (b) **M1** fraction 100/290 or equivalent seen
- (b) **A1** 10/29 cao
- **(b) Answer: 10/29**

Question 19

- **M1** identifying difference from mean for each day or recognising Day 1 = 120 equals mean
- **A1** Day 1 cao
- **Answer:A) Day 1**

Working check: Mean given as 120. Day 1 = 120 so difference 0, others differ more.

Question 20

- **M1** use total = mean x number of baskets: 15 x 4 = 60, and subtract known values
- **A1** 18 cao
- **Answer:18**

Working check: Total needed = 15 x 4 = 60. Known sum = 14 + 18 + 10 = 42. x = 60 - 42 = 18.