9.1 Reasoning: Statistics: Test Pack

STA NC-KS2-MA-STATS · Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A group of Year 4 pupils were asked to choose their favourite drink. The pictogram shows the results.

Favourite Drinks

● = 2 pupils ◐ = 1 pupil

Water	● ● ● ●
Juice	● ● ● ◐
Milk	● ●
Squash	● ● ● ● ●

(a) How many pupils chose Milk? **(1)**

.....

(b) How many more pupils chose Squash than Water? **(1)**

.....

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2 A survey asked pupils in Year 6 whether they prefer chess or football. Some totals are missing from the two-way table.

	Chess	Football	Total
Boys	7	12	?
Girls	9	?	17
Total	?	?	36

	Chess	Football	Total
Boys	7	12	?
Girls	9	?	17
Total	?	?	36

(a) Complete the table by finding the missing Boys total, the missing Girls Football value, and the missing Football column total. **(3)**

(b) How many more girls than boys chose chess? **(1)**

.....

3 Four pupils recorded the number of minutes they spent reading one evening: 22, 15, 30 and 25. A fifth pupil, whose reading time is x minutes (a whole number), is added to the data. The range of all five values is 18 minutes.

Find the two possible values of x.

(3)

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4 The mean age of 5 members of a family is 24 years. Four of the ages are 8, 45, 12 and 40. The fifth member's age is x years.

(a) Show that x = 15. **(2)**

(b) A sixth family member, aged y years, joins the family. The new mean age of all six members is 22 years. Work out y. **(2)**

5 The table shows part of a bus timetable.

	Newtown	Millfield	Oakham
Bus A	09:05	09:32	09:58
Bus B	09:40	10:03	10:35

(a) How long does Bus A take to travel from Newtown to Oakham? **(1)**

(b) Amara arrives at Millfield station at 09:50. Work out how long she must wait for the next bus to Oakham. **(2)**

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6 The bar chart shows the number of laps swum by four swimmers in a school gala.



(a) How many more laps did Chidi swim than Grace? **(1)**

.....

(b) Work out the mean number of laps swum by the four swimmers. **(2)**

.....

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7 A pictogram uses (*) for 10 items and (half) for 5 items.

Bus: (*) (*) (*) (half)
Car: (*) (*) (*) (*) (*) (half)
Walk: (*) (*)

How many items does Walk show?

Answer: ___

(2)

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8 The table shows the litres of rain for four groups.

Bus: 225
Car: 56
Walk: 715
Bike: 669

What is the difference between the highest and the lowest litres?

Answer: ___

(2)

---

9 A school club survey is shown.

Boys: 27 chose Football, 16 chose Netball
Girls: 23 chose Football, 23 chose Netball

How many pupils chose Football?

Answer: ___

(2)

---

10 Isla records the books read each week over 3 days: 10, 12, 17.

On the next day Isla does 19. What is the mean of all 4 days?

Answer: ___

(2)

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11 A school club survey is shown.

Boys: 23 chose Art, 22 chose Music
Girls: 16 chose Art, 7 chose Music

How many pupils chose Art?

Answer: ___

(2)

---

12 During a reading challenge, six pupils recorded the number of books they read in a month: 4, 7, 5, 8, 6, 6.

Calculate the mean number of books read.

(3)

---

13 The table shows the litres of rain for four groups.

Spring: 813
Summer: 557
Autumn: 823
Winter: 596

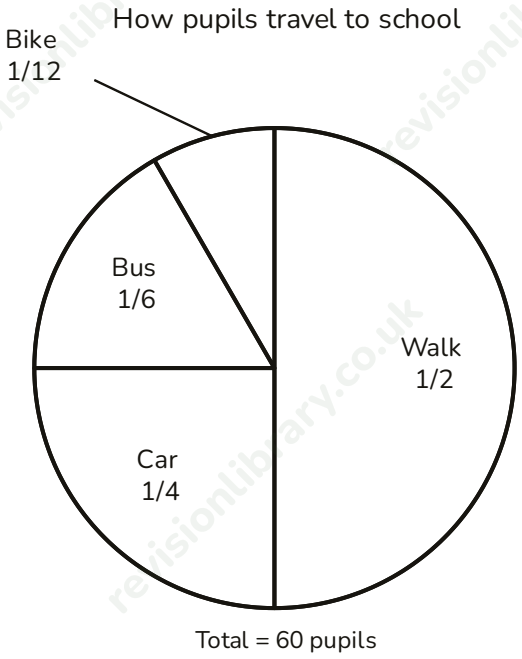
How many litres were there for Autumn?

Answer: ___

(1)

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14 The pie chart shows how 60 pupils in Year 5 travel to school.



(a) What fraction of the pupils travel by car? **(1)**

.....

(b) Work out how many pupils travel by bus. **(2)**

.....

(c) Work out how many pupils travel by bike. **(2)**

.....

15 20 people answered a survey. 14 of them chose tea. In a pie chart this is shown as a sector.

What is the angle of the sector?

Answer: ___ degrees

(2)

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16 The table shows the litres of rain for four groups.

Spring: 184
Summer: 290
Autumn: 304
Winter: 853

How many more litres were there for Winter than for Spring?

Answer: ___

(2)

---

17 The heights, in cm, of five friends are 132, 128, 135, 130 and x. The mean height of the five friends is 131 cm.

Show that x = 130.

(2)

---

18 George records the books read each week over 4 days: 4, 8, 6, 10.

On the next day George does 15. What is the mean of all 5 days?

Answer: ___

(2)

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Mark scheme · 9.1 Reasoning: Statistics: Test Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

(a) 4 pupils cao **B1**

(a) Answer: **4 pupils**

(b) 2 cao **B1**

(b) Answer: **2**

Question 2

(a) Boys total = 19 (7 + 12) **B1**

(a) Girls football = 8 (17 - 9) **B1**

(a) Football total = 20 (12 + 8), ft their Girls football value **B1**

(a) Answer: **Boys total = 19; Girls football = 8; Football total = 20**

(b) 2 cao, ft from part (a) **B1**

(b) Answer: **2**

Question 3

recognises the current known values have max 30 and min 15, and sets up either x - 15 = 18 (x as new maximum) or 30 - x = 18 (x as new minimum) **M1**

x = 33 **A1**

x = 12 **A1**

Answer: **x = 12 or x = 33**

Question 4

(a) total for 5 members = 24 x 5 = 120 **M1**

(a) cso: 8+45+12+40 = 105, and 120 - 105 = 15 shown **A1**

(a) Answer: **x = 15 (given, shown)**

(b) new total = 22 x 6 = 132 seen **M1**

(b) y = 12 cao **A1**

(b) Answer: **y = 12**

Question 5

(a) 53 minutes cao **B1**

(a) Answer: **53 minutes**

(b) identifies Bus B (10:03) is the next available bus from Millfield after 09:50 **M1**

(b) 13 minutes cao **A1**

(b) Answer: **13 minutes**

Question 6

(a) 15 cao **B1**

(a) Answer: **15 laps**

(b) 25+30+15+20 = 90 seen **M1**

(b) 22.5 laps cao **A1**

(b) Answer: **22.5 laps**

Question 7

uses the key **M1**

20 cao **A1**

Answer: **20**

Question 8

identifies the highest and lowest **M1**

659 cao **A1**

Answer: **659**

Question 9

adds the boys and girls **M1**

50 cao **A1**

Answer: **50**

Question 10

total 58 seen **M1**

14.5 cao **A1**

Answer: **14.5**

Question 11

adds the boys and girls **M1**

39 cao **A1**

Answer: **39**

Question 12

4 + 7 + 5 + 8 + 6 + 6 = 36 (sum of all six values) **M1**

36 divided by 6 (dependent on correct sum) **dM1**

6 books cao **A1**

Answer: **6 books**

Question 13

823 cao **B1**

Answer: **823**

Question 14

(a) 1/4 oe (e.g. 0.25, 25%) **B1**

(a) Answer: **1/4**

(b) 60 divided by 6 (or 1/6 of 60) seen **M1**

(b) 10 pupils cao **A1**

(b) Answer: **10 pupils**

(c) 60 - (30 + 15 + 10) or equivalent fraction method 1 - (1/2 + 1/4 + 1/6) = 1/12 **M1**

(c) 5 pupils cao **A1**

(c) Answer: **5 pupils**

Question 15

360 divided by the total **M1**

252 degrees cao **A1**

Answer: **252 degrees**

Question 16

subtraction seen **M1**

669 cao **A1**

Answer: **669**

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Question 17

Total for 5 friends = 131 x 5 = 655	**M1**
cso: 132+128+135+130 = 525, and 655 - 525 = 130 shown	**A1**

Answer: **x = 130 (given, shown)**

Question 18

total 43 seen	**M1**
8.6 cao	**A1**

Answer: **8.6**

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