10.3-9 Reasoning Practice Paper 9: 1-hour Pack

NATIONAL CURRICULUM KS2 National Curriculum Mathematics - Reasoning Practice Paper Framework · Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The table shows the number of books borrowed for four groups.

Spring: 30
Summer: 43
Autumn: 49
Winter: 25

How many books were there for Spring?

Answer: ___

(1)

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2 The table shows the number of pupils for four groups.

Mon: 84
Tue: 65
Wed: 68
Thu: 20

How many pupils were there for Mon and Thu together?

Answer: ___

(1)

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3 3 identical circles are drawn in a straight row, touching each other. Each circle has a radius of 22 cm.

How long is the whole row?

Answer: ___ cm

(2)

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4 Here are 5 ages of children in a team: 22, 15, 20, 23, 20.

What is the mean?

Answer: ___

(2)

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5 In a survey of 250 pupils at a secondary school, 64% said they walk or cycle to school. Of the pupils who do NOT walk or cycle, half travel by car and the rest travel by bus. Work out how many pupils travel to school by bus.

(3)

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6 Nadia posts a parcel with a mass of 2.35 kg. Postage costs 85p for every 100g, with any part of an extra 100g charged as a full 100g. Work out the total cost of posting the parcel.

(3)

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7 Grace hires a plumber to fix a leaking pipe. The plumber charges a fixed call-out fee of £35, plus an hourly rate for the time spent working. For a job that took 3 hours, the total charge was £155. Work out the plumber's hourly rate.

(2)

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8 Kemi is a decorator who mixes blue paint and white paint in the ratio 5:3 to make a particular shade of pale blue paint. She needs to make 32 litres of the pale blue paint in total. Work out how many more litres of blue paint than white paint she needs.

(3)

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9 A line graph shows the temperature in degrees Celsius at different times. The points on the graph are: 8:00 = 10, 9:00 = 11, 10:00 = 16, 11:00 = 22, 12:00 = 21, 13:00 = 24.

What was the value at 10:00?

Answer: ___ degrees

(1)

---

10 How many vertices does a prism with an octagonal cross-section (8 sides) have?

Answer: ___

(2)

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

North: (*) (half)
South: (*) (*) (*)
East: (*) (half)

How many items are shown altogether?

Answer: ___

(3)

---

12 Part of a train timetable is shown.

Hollin: 13:30
Grange: 13:49
Fenwick: 13:56
Dunmere: 14:21

Sofia arrives at Grange station at 13:29.

How many minutes must they wait for the train?

Answer: ___ minutes

(2)

---

13 Here are 7 number of goals scored: 37, 36, 33, 34, 31, 27, 33.

What is the mean?

Answer: ___

(2)

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14 Sunita's fish tank holds 45 litres of water when full. She has already poured in 18 litres using a jug that holds 3 litres each time. Work out how many more times she needs to fill and pour the jug to fill the tank completely.

(2)

---

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

Cats: 16
Dogs: 75
Fish: 68
Birds: 67

How many more litres were there for Fish than for Birds?

Answer: ___

(2)

---

16 Amira records the books read each week over 4 days: 16, 20, 21, 15.

On the next day Amira does 26. What is the mean of all 5 days?

Answer: ___

(2)

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17 A line graph shows the temperature in degrees Celsius at different times. The points on the graph are: 8:00 = 7, 9:00 = 12, 10:00 = 17, 11:00 = 19, 12:00 = 18, 13:00 = 23.

What was the value at 9:00?

Answer: ___ degrees

(1)

---

18 A pie chart shows how 360 children answered a survey. The sector for those who walk to school has an angle of 225 degrees.

How many children walk to school?

Answer: ___

(2)

---

19 A regular heptagon has all sides equal. Each side is 7 cm.

What is its perimeter?

Answer: ___ cm

(1)

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

North: 15
South: 23
East: 41
West: 66

How many more litres were there for West than for South?

Answer: ___

(1)

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21 The table shows the tickets sold for four groups.

Cats: 75
Dogs: 375
Fish: 630
Birds: 349

What is the total for all four groups?

Answer: ___

(2)

---

22 Points C and D are at (-5, -6) and (-3, -6). Each grid square is 1 unit wide.

How far is C from D?

Answer: ___ units

(1)

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23 A line joins (-1, 4) and (3, 4).

What are the coordinates of the midpoint of the line?

Answer: (___, ___)

(2)

---

24 How many faces are in a net of a tetrahedron?

Answer: ___

(1)

---

25 A circle has a radius of 28 cm. What is its diameter?

Answer: ___ cm

(1)

---

26 Point B is at (0, 3). It is reflected in the mirror line x = 4.

What are the coordinates of the image of B?

Answer: (___, ___)

(2)

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Mark scheme · 10.3-9 Reasoning Practice Paper 9: 1-hour Pack

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

Question 1

30 cao	B1

Answer: **30**

Question 2

104 cao	B1

Answer: **104**

Question 3

diameter 44 seen	M1
132 cm cao	A1

Answer: **132 cm**

Question 4

100 seen	M1
20 cao	A1

Answer: **20**

Question 5

64% of 250 = 160 oe	M1
250 - 160 = 90, dependent on correct value of 160	dM1
45 cao (half of 90)	A1

Answer: **45 pupils**

Question 6

converts 2.35 kg to 2350g and divides by 100 to get 23.5 oe	M1
rounds up to 24 (complete 100g units), dependent on correct division	dM1
£20.40 cao	A1

Answer: **£20.40**

Question 7

155 - 35 = 120 oe	M1
£40 cao	A1

Answer: **£40 per hour**

Question 8

5 + 3 = 8 (total parts), 32 / 8 = 4 (value of one part) oe	M1
blue = 5 x 4 = 20, white = 3 x 4 = 12, dependent on correct value of one part	dM1
8 cao	A1

Answer: **8 litres**

Question 9

16 degrees cao	B1

Answer: **16 degrees**

Question 10

uses a rule or counts carefully	M1
16 cao	A1

Answer: **16**

Question 11

uses the key	M1
adds the three values	M1
60 cao	A1

Answer: **60**

Question 12

finds the wait between arriving and the departure time (counting on or subtracting)	M1
20 minutes cao	A1

Answer: **20 minutes**

Question 13

231 seen	M1
33 cao	A1

Answer: **33**

Question 14

45 - 18 = 27 oe	M1
9 cao	A1

Answer: **9 times**

Question 15

subtraction seen	M1
1 cao	A1

Answer: **1**

Question 16

total 98 seen	M1
19.6 cao	A1

Answer: **19.6**

Question 17

12 degrees cao	B1

Answer: **12 degrees**

Question 18

angle as a fraction of 360	M1
225 cao	A1

Answer: **225**

Question 19

49 cm cao	B1

Answer: **49 cm**

Question 20

43 cao	B1

Answer: **43**

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Question 21

adds at least two values	**M1**
1,429 cao	**A1**

Answer: **1,429**

Question 22

2 units cao	**B1**

Answer: **2 units**

Question 23

halves the horizontal distance	**M1**
(1, 4) cao	**A1**

Answer: **(1, 4)**

Question 24

4 cao	**B1**

Answer: **4**

Question 25

56 cm cao	**B1**

Answer: **56 cm**

Question 26

same distance from the mirror line	**M1**
(8, 3) cao	**A1**

Answer: **(8, 3)**

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