10.3-9 Reasoning Practice Paper 9: 2-hour Pack

NATIONAL CURRICULUM KS2 National Curriculum Mathematics - Reasoning Practice Paper Framework · Calculators not allowed · about 120 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A charity bake sale raises £2.20 for every packet of biscuits sold. On Saturday the group sold 34 packets, and on Sunday they sold 27 packets. Work out the total amount of money raised over the weekend.

(2)

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2 A pictogram uses (*) for 2 items and (half) for 1 items.

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

How many whole symbols are needed to show 18 items?

Answer: ___

(2)

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3 Uma records the books read each week over 4 days: 12, 8, 9, 15.

On the next day Uma does 19. What is the mean of all 5 days?

Answer: ___

(2)

---

4 20 children answered a survey. 19 of them walk to school. In a pie chart this is shown as a sector.

What is the angle of the sector?

Answer: ___ degrees

(2)

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5 Part of a train timetable is shown.

Grange: 14:50
Carlow: 15:21
Dunmere: 15:54
Eastleigh: 16:17

How many minutes does the train take to travel from Grange to Eastleigh?

Answer: ___ minutes

(1)

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6 The table shows the tickets sold for four groups.

Mon: 884
Tue: 66
Wed: 696
Thu: 121

What is the total for all four groups?

Answer: ___

(3)

---

7 A school club survey is shown.

Boys: 29 chose Swimming, 11 chose Tennis
Girls: 5 chose Swimming, 21 chose Tennis

How many boys were surveyed?

Answer: ___

(2)

---

8 Four friends go bowling together. The cost is £6.40 per person for one game, plus a one-off £5.00 shoe hire fee for the whole group. Work out the total amount the group pays.

(2)

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9 A pie chart shows how 120 people answered a survey. The sector for those who chose tea has an angle of 120 degrees.

How many people chose tea?

Answer: ___

(2)

---

10 A shape has vertices A(1, 5), B(5, 6), C(2, 4), D(2, 3). It is translated 4 units right and 2 units up.

Write the coordinates of the translated vertices in the same order.

Answer: ___

(2)

---

11 A shape has vertices A(1, 6), B(1, 2), C(3, 4). It is translated 1 unit right.

Write the coordinates of the translated vertices in the same order.

Answer: ___

(2)

---

12 The mean mark of 6 pupils in a test is 21.

What is the total of their marks?

Answer: ___

(1)

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13 A shape has vertices A(5, 5), B(6, 1), C(1, 1). It is translated 4 units right and 3 units up.

Write the coordinates of the translated vertices in the same order.

Answer: ___

(2)

---

14 The table shows the number of visitors for four groups.

Red: 70
Blue: 90
Green: 79
Yellow: 40

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

Answer: ___

(2)

---

15 A line joins (0, 7) and (2, 7).

What are the coordinates of the midpoint of the line?

Answer: (___, ___)

(2)

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16 Kiran records the minutes spent on homework each night over 3 days: 12, 15, 15.

On the next day Kiran does 20. What is the mean of all 4 days?

Answer: ___

(2)

---

17 Leah cycles at an average speed of 18 km per hour. Work out how far she travels in 2 hours 30 minutes, assuming she keeps this speed constant throughout.

(2)

---

18 Point P is at (2, -2). It moves 4 units right and 2 units down.

What are the coordinates of the new point?

Answer: (___, ___)

(1)

---

19 A school club survey is shown.

Boys: 24 chose Swimming, 8 chose Tennis
Girls: 8 chose Swimming, 28 chose Tennis

How many pupils chose Swimming?

Answer: ___

(2)

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20 A school club survey is shown.

Boys: 27 chose Swimming, 23 chose Tennis
Girls: 20 chose Swimming, 18 chose Tennis

How many pupils were surveyed altogether?

Answer: ___

(3)

---

21 Mateo records the minutes spent on homework each night over 3 days: 16, 13, 10.

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

Answer: ___

(2)

---

22 Three angles in a quadrilateral are 85, 127 and 82 degrees.

What is the fourth angle?

Answer: ___ degrees

(2)

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23 A line joins (0, 5) and (6, 5).

What are the coordinates of the midpoint of the line?

Answer: (___, ___)

(2)

---

24 The minute hand of a clock turns clockwise from 12 to the number 2.

Through how many degrees has it turned?

Answer: ___ degrees

(2)

---

25 A youth theatre group has 96 members. 3/8 of the members are in Year 6. Of the members who are NOT in Year 6, 1/3 play a musical instrument. Work out how many members of the youth theatre play a musical instrument.

(3)

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26 The table shows the points scored for four groups.

North: 270
South: 848
East: 74
West: 658

How many more points were there for West than for North?

Answer: ___

(2)

---

27 A pictogram uses (*) for 4 items and (half) for 2 items.

Spring: (*)
Summer: (*) (*) (*) (half)
Autumn: (*) (*) (*) (*) (*)

How many items are shown altogether?

Answer: ___

(3)

---

28 Three angles in a quadrilateral are 72, 67 and 103 degrees.

What is the fourth angle?

Answer: ___ degrees

(2)

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29 Points C and D are at (7, 0) and (9, 0). Each grid square is 1 unit wide.

How far is C from D?

Answer: ___ units

(1)

---

30 A pie chart shows how 24 children answered a survey. The sector for those who walk to school has an angle of 300 degrees.

How many children walk to school?

Answer: ___

(2)

---

31 The table shows the tickets sold for four groups.

Year 3: 703
Year 4: 688
Year 5: 582
Year 6: 884

How many tickets were there for Year 3 and Year 6 together?

Answer: ___

(2)

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

Cats: 772
Dogs: 247
Fish: 596
Birds: 170

What is the total for all four groups?

Answer: ___

(1)

---

33 A school allotment is a rectangle measuring 8m by 5m. The gardening club digs over the whole allotment except for a square compost bin of side length 1.5m in one corner. Work out the area, in m^2, that is left for planting.

(3)

---

34 Here are 5 scores in a quiz: 39, 35, 32, 32, 32.

What is the mean?

Answer: ___

(2)

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35 A school club survey is shown.

Boys: 21 chose Football, 8 chose Netball
Girls: 22 chose Football, 22 chose Netball

How many more pupils chose Football than Netball?

Answer: ___

(2)

---

36 Through how many degrees is a turn of 1/3 of a full turn?

Answer: ___ degrees

(2)

---

37 Amira records the books read each week over 5 days: 23, 23, 26, 27, 26.

On the next day Amira does 35. What is the mean of all 6 days?

Answer: ___

(2)

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38 Part of a train timetable is shown.

Dunmere: 14:50
Hollin: 15:20
Fenwick: 15:59
Grange: 16:22

How many minutes does the train take to travel from Hollin to Grange?

Answer: ___ minutes

(1)

---

39 Ethan records the books read each week over 5 days: 19, 22, 23, 23, 13.

On the next day Ethan does 30. What is the mean of all 6 days?

Answer: ___

(2)

---

40 In a class of 31 pupils, 18 like football, 9 like netball and 6 like both.

How many pupils like neither?

Answer: ___

(2)

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41 The table shows the points scored for four groups.

Mon: 68
Tue: 57
Wed: 53
Thu: 12

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

Answer: ___

(2)

---

42 A right angle is split into two angles. One of them is 38 degrees.

What is the other?

Answer: ___ degrees

(1)

---

43 The mean of 5 numbers is 23. 4 of the numbers are 23, 23, 27, 19.

What is the other number?

Answer: ___

(2)

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

Cats: (*) (*) (*) (half)
Dogs: (*) (*) (*) (*) (*) (half)
Fish: (*) (*) (half)

How many more items does Cats show than Fish?

Answer: ___

(3)

---

45 A line graph shows the height of a plant in cm at different times. The points on the graph are: 8:00 = 20, 9:00 = 26, 10:00 = 24, 11:00 = 25, 12:00 = 25, 13:00 = 24.

What was the value at 11:00?

Answer: ___ cm

(1)

---

46 A line graph shows the height of a plant in cm at different times. The points on the graph are: 8:00 = 8, 9:00 = 13, 10:00 = 19, 11:00 = 18, 12:00 = 24, 13:00 = 23.

By how much did it change between 12:00 and 13:00? Write a positive number.

Answer: ___ cm

(2)

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47 An angle measures 78 degrees. Is it acute, obtuse or reflex?

Answer: ___

(1)

---

48 Poppy records the minutes spent on homework each night over 5 days: 11, 16, 12, 11, 20.

On the next day Poppy does 24. What is the mean of all 6 days?

Answer: ___

(2)

---

49 The mean of 7 numbers is 22. 6 of the numbers are 19, 18, 26, 25, 21, 21.

What is the other number?

Answer: ___

(2)

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Mark scheme · 10.3-9 Reasoning Practice Paper 9: 2-hour Pack

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

Question 1

34 + 27 = 61 oe	M1
£134.20 cao	A1

Answer: **£134.20**

Question 2

divides by the key	M1
9 cao	A1

Answer: **9**

Question 3

total 63 seen	M1
12.6 cao	A1

Answer: **12.6**

Question 4

360 divided by the total	M1
342 degrees cao	A1

Answer: **342 degrees**

Question 5

87 minutes cao	B1

Answer: **87 minutes**

Question 6

adds at least two values	M1
adds all four values	M1
1,767 cao	A1

Answer: **1,767**

Question 7

adds both boys' values	M1
40 cao	A1

Answer: **40**

Question 8

4 x 6.40 = 25.60 oe	M1
£30.60 cao	A1

Answer: **£30.60**

Question 9

angle as a fraction of 360	M1
40 cao	A1

Answer: **40**

Question 10

two vertices correct	M1
(5, 7), (9, 8), (6, 6), (6, 5) cao	A1

Answer: **(5, 7), (9, 8), (6, 6), (6, 5)**

Question 11

two vertices correct	M1
(2, 6), (2, 2), (4, 4) cao	A1

Answer: **(2, 6), (2, 2), (4, 4)**

Question 12

126 cao	B1

Answer: **126**

Question 13

two vertices correct	M1
(9, 8), (10, 4), (5, 4) cao	A1

Answer: **(9, 8), (10, 4), (5, 4)**

Question 14

identifies the highest and lowest	M1
50 cao	A1

Answer: **50**

Question 15

halves the horizontal distance	M1
(1, 7) cao	A1

Answer: **(1, 7)**

Question 16

total 62 seen	M1
15.5 cao	A1

Answer: **15.5**

Question 17

converts 2 hours 30 minutes to 2.5 hours oe	M1
45 km cao	A1

Answer: **45 km**

Question 18

(6, -4) cao	B1

Answer: **(6, -4)**

Question 19

adds the boys and girls	M1
32 cao	A1

Answer: **32**

Question 20

adds the boys	M1
adds all four	M1
88 cao	A1

Answer: **88**

Question 21

total 58 seen	M1
14.5 cao	A1

Answer: **14.5**

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Question 22

294 seen	M1
66 degrees cao	A1

Answer: **66 degrees**

Question 23

halves the horizontal distance	M1
(3, 5) cao	A1

Answer: **(3, 5)**

Question 24

30 degrees for each number	M1
60 degrees cao	A1

Answer: **60 degrees**

Question 25

3/8 of 96 = 36 (96 / 8 = 12, 12 x 3 = 36) oe	M1
96 - 36 = 60, dependent on correct value of 36	dM1
20 cao (1/3 of 60)	A1

Answer: **20 members**

Question 26

subtraction seen	M1
388 cao	A1

Answer: **388**

Question 27

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

Answer: **38**

Question 28

242 seen	M1
118 degrees cao	A1

Answer: **118 degrees**

Question 29

2 units cao	B1

Answer: **2 units**

Question 30

angle as a fraction of 360	M1
20 cao	A1

Answer: **20**

Question 31

addition seen	M1
1,587 cao	A1

Answer: **1,587**

Question 32

1,785 cao	B1

Answer: **1,785**

Question 33

8 x 5 = 40 oe	M1
1.5 x 1.5 = 2.25 oe	M1
37.75 cao	A1

Answer: **37.75 m^2**

Question 34

170 seen	M1
34 cao	A1

Answer: **34**

Question 35

both totals found	M1
13 cao	A1

Answer: **13**

Question 36

360 divided by the denominator	M1
120 degrees cao	A1

Answer: **120 degrees**

Question 37

total 160 seen	M1
26 2/3 or 80/3 cao (accept 26.7 or better)	A1

Answer: **26 2/3**

Question 38

62 minutes cao	B1

Answer: **62 minutes**

Question 39

total 130 seen	M1
21 2/3 or 65/3 cao (accept 21.7 or better)	A1

Answer: **21 2/3**

Question 40

18 + 9 - 6 = 21 seen	M1
10 cao	A1

Answer: **10**

Question 41

identifies the highest and lowest	M1
56 cao	A1

Answer: **56**

Question 42

52 degrees cao	B1

Answer: **52 degrees**

Question 43

23 x 5 = 115 seen	M1
23 cao	A1

Answer: **23**

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Question 44

uses the key	**M1**
subtracts	**M1**
10 cao	**A1**

Answer: **10**

Question 45

25 cm cao	**B1**

Answer: **25 cm**

Question 46

finds the difference between the two values	**M1**
1 cm cao	**A1**

Answer: **1 cm**

Question 47

acute cao	**B1**

Answer: **acute**

Question 48

total 94 seen	**M1**
15 2/3 or 47/3 cao (accept 15.7 or better)	**A1**

Answer: **15 2/3**

Question 49

22 x 7 = 154 seen	**M1**
24 cao	**A1**

Answer: **24**

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