10.3-10 Reasoning Practice Paper 10: 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 number a is found using a = 3n - 6.

Work out a when n = 3.

Answer: ___

(2)

---

2 Ella, Mateo and Ethan share 68 sweets in the ratio 5:7:5.

How many sweets does Ethan get?

Answer: ___

(2)

---

3 Work out 1/8 of 112 kg.

Answer: ___

(1)

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4 £1 = 5 euros.

A toy costs 145 euros. How much is that in pounds?

Answer: £___

(1)

---

5 The nth term of a sequence is 2n + 5.

What is the 21st term?

Answer: ___

(2)

---

6 4 postcards cost 120p.

How much do 7 postcards cost? Give your answer in pounds.

Answer: £___

(2)

---

7 A function machine subtracts 9 then multiplies by 3.

What is the output when the input is 23?

Answer: ___

(2)

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8 A shop sells 3 cereal packs for £1.41 and 5 cereal packs for £1.18.

Which option costs less for each pack? Write 3 or 5 for the number of packs.

Answer: ___

(2)

---

9 The rule for a sequence is: start at 1 and add 8 each time. The 1st term is 1.

What is the 29th term?

Answer: ___

(2)

---

10 In a class of 26 pupils, 16 like cheese, 11 like ham and 8 like both.

How many pupils like neither?

Answer: ___

(2)

---

11 On a map, 1 cm shows 10 km. Two towns are 5 cm apart on the map.

How far apart are the towns in real life?

Answer: ___ km

(1)

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12 A function machine adds 9 then subtracts 8.

What is the output when the input is 22?

Answer: ___

(2)

---

13 6 badges cost 126p.

How much do 10 badges cost? Give your answer in pounds.

Answer: £___

(2)

---

14 A shop sells 2 juice packs for £0.91 and 5 juice packs for £4.95.

Which option costs less for each pack? Write 2 or 5 for the number of packs.

Answer: ___

(2)

---

15 Aaron has 16 more marbles than Daisy. Together they have 44 marbles.

How many marbles does Daisy have?

Answer: ___

(2)

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16 In a class of 21 pupils, 11 like football, 14 like netball and 6 like both.

How many pupils like neither?

Answer: ___

(2)

---

17 Priya buys a sandwich for £2.35 and a carton of juice for £1.20. She pays with a £5 note. Work out how much change she gets.

(2)

---

18 The rule for a sequence is: start at 19 and add 6 each time. The 1st term is 19.

What is the 14th term?

Answer: ___

(2)

---

19 a and b are whole numbers. a + b = 43 and a is 3 more than b.

Find a and b.

Answer: a = ___, b = ___

(2)

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20 The nth term of a sequence is 8n + 8.

What is the 13th term?

Answer: ___

(2)

---

21 A recipe for muffins for 2 people uses 175 ml of milk.

How much milk is needed for 10 people?

Answer: ___ ml

(2)

---

22 Matchsticks are used to make a row of hexagons joined side by side. One hexagon uses 6 sticks and each extra hexagon added needs 5 more sticks.

How many sticks are needed for 7 hexagons?

Answer: ___

(2)

---

23 £1 = 6 euros.

How many euros do you get for £51?

Answer: ___ euros

(1)

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24 a and b are positive whole numbers. a + b = 28 and a x b is less than 84.

How many pairs (a, b) with a smaller than b satisfy both conditions?

Answer: ___

(3)

---

25 On a map, 1 cm shows 10 km. Two towns are 7 cm apart on the map.

How far apart are the towns in real life?

Answer: ___ km

(1)

---

26 Here is a sequence: 5, 13, 21, 29, 37, ...

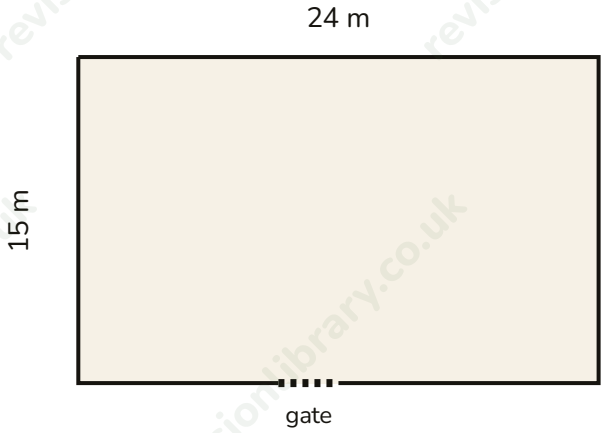
Write the next two terms.

Answer: ___, ___

(2)

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27 Farmer Amaan has a rectangular field that is 24m long and 15m wide, as shown in the diagram. He wants to put a fence all the way around the perimeter of the field, plus an extra 3m of fencing for overlap at the gate. Work out the total length of fencing he needs.



(3)

---

28 Zara has 4 more marbles than Uma. Together they have 30 marbles.

How many marbles does Uma have?

Answer: ___

(2)

---

29 Nia has 13 more marbles than Isla. Together they have 21 marbles.

How many marbles does Isla have?

Answer: ___

(2)

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30 A shop sells 6 juice packs for £1.06 and 4 juice packs for £4.97.

Which option costs less for each pack? Write 6 or 4 for the number of packs.

Answer: ___

(2)

31 £1 = 8 dollars.

A toy costs 248 dollars. How much is that in pounds?

Answer: £___

(1)

32 A function machine multiplies by 2.

What is the output when the input is 28?

Answer: ___

(1)

33 A shop sells 4 crayons for 40p and 8 crayons for 129p.

Which pack is better value for money? Write the number of crayons in the pack.

Answer: ___

(2)

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34 Hassan has m stamps. Zak has 7 times as many stamps as Hassan.

Write an expression for the number of stamps Zak has.

Answer: ___

(1)

35 A train leaves Sheffield at 09:47 and arrives in Leeds at 10:15. Work out how many minutes the journey takes.

(2)

36 Dev is 5 times as old as Zara. Together their ages add up to 42.

How old is Zara?

Answer: ___

(2)

37 Zara, Ravi and Ben share 70 stamps in the ratio 1:3:6.

How many stamps does Ben get?

Answer: ___

(1)

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38 a and b are positive whole numbers with a + b = 24.

How many different pairs (a, b) are there? Count (1, 23) and (23, 1) as different pairs.

Answer: ___

(2)

---

39 The sum of 3 consecutive even numbers is 108.

What is the smallest of the 3 numbers?

Answer: ___

(2)

---

40 A recipe for muffins for 5 people uses 125 g of sugar.

How much sugar is needed for 15 people?

Answer: ___ g

(2)

---

41 a and b are positive whole numbers with a + b = 17.

How many different pairs (a, b) are there? Count (1, 16) and (16, 1) as different pairs.

Answer: ___

(2)

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42 Uma has 21 more marbles than Noah. Together they have 63 marbles.

How many marbles does Noah have?

Answer: ___

(2)

---

43 Two whole numbers have a sum of 14 and a difference of 10.

What are the two numbers? Write the smaller one first.

Answer: ___ and ___

(2)

---

44 A number a is found using a = 3n - 8.

Work out a when n = 8.

Answer: ___

(2)

---

45 Ella has 13 more marbles than Priya. Together they have 93 marbles.

How many marbles does Priya have?

Answer: ___

(2)

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46 The ratio of fiction books to non-fiction books is 3:8. There are 99 books altogether.

How many fiction books are there?

Answer: ___

(2)

---

47 For every 1 red counters there are 7 blue counters. There are 9 red counters.

How many blue counters are there?

Answer: ___

(2)

---

48 8 stickers cost 664p.

How much do 4 stickers cost? Give your answer in pounds.

Answer: £___

(2)

---

49 A shop sells 3 cereal packs for £1.37 and 5 cereal packs for £4.31.

Which option costs less for each pack? Write 3 or 5 for the number of packs.

Answer: ___

(2)

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50 T = 3x + 4y.

Work out T when x = 7 and y = 8.

Answer: ___

(2)

---

51 A regular shape has perimeter P = 4s, where s is the side length.

Work out P when s = 7.

Answer: ___

(1)

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Mark scheme · 10.3-10 Reasoning Practice Paper 10: 2-hour Pack

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

Question 1

3 x 3 = 9 seen	M1
3 cao	A1

Answer: **3**

Question 2

68 divided by 17 = 4 seen	M1
20 cao	A1

Answer: **20**

Question 3

14 kg cao	B1

Answer: **14 kg**

Question 4

£29 cao	B1

Answer: **£29**

Question 5

2 x 21 seen	M1
47 cao	A1

Answer: **47**

Question 6

120 divided by 4 = 30 seen	M1
£2.10 cao	A1

Answer: **£2.10**

Question 7

first operation applied correctly	M1
42 cao	A1

Answer: **42**

Question 8

works out a cost per pack for each option	M1
5 cao	A1

Answer: **5**

Question 9

28 steps of 8 seen	M1
225 cao	A1

Answer: **225**

Question 10

16 + 11 - 8 = 19 seen	M1
7 cao	A1

Answer: **7**

Question 11

50 km cao	B1

Answer: **50 km**

Question 12

first operation applied correctly	M1
23 cao	A1

Answer: **23**

Question 13

126 divided by 6 = 21 seen	M1
£2.10 cao	A1

Answer: **£2.10**

Question 14

works out a cost per pack for each option	M1
2 cao	A1

Answer: **2**

Question 15

44 - 16 = 28 seen	M1
14 cao	A1

Answer: **14**

Question 16

11 + 14 - 6 = 19 seen	M1
2 cao	A1

Answer: **2**

Question 17

2.35 + 1.20 = 3.55 oe	M1
£1.45 cao	A1

Answer: **£1.45**

Question 18

13 steps of 6 seen	M1
97 cao	A1

Answer: **97**

Question 19

forms or tests an equation	M1
a = 23, b = 20 cao	A1

Answer: **a = 23, b = 20**

Question 20

8 x 13 seen	M1
112 cao	A1

Answer: **112**

Question 21

finds the amount for 1 person or a scale factor	M1
875 ml cao	A1

Answer: **875 ml**

Question 22

6 extra shapes seen	M1
36 cao	A1

Answer: **36**

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Question 23

306 euros cao **B1**

Answer: **306 euros**

Question 24

lists the pairs **M1**

tests the product **M1**

3 cao **A1**

Answer: **3**

Question 25

70 km cao **B1**

Answer: **70 km**

Question 26

identifies the rule **M1**

45, 53 cao **A1**

Answer: **45, 53**

Question 27

perimeter = 2 x (24 + 15) = 78 (m) oe **M1**

78 + 3 = 81, dependent on correct perimeter **dM1**

81 m cao **A1**

Answer: **81 m**

Question 28

30 - 4 = 26 seen **M1**

13 cao **A1**

Answer: **13**

Question 29

21 - 13 = 8 seen **M1**

4 cao **A1**

Answer: **4**

Question 30

works out a cost per pack for each option **M1**

6 cao **A1**

Answer: **6**

Question 31

£31 cao **B1**

Answer: **£31**

Question 32

56 cao **B1**

Answer: **56**

Question 33

finds the cost of one in each pack **M1**

4 cao **A1**

Answer: **4**

Question 34

7m cao **B1**

Answer: **7m**

Question 35

splits the time into 09:47 to 10:00 (13 minutes) and 10:00 to 10:15 (15 minutes) oe **M1**

28 minutes cao **A1**

Answer: **28 minutes**

Question 36

6 equal parts seen **M1**

7 cao **A1**

Answer: **7**

Question 37

42 cao **B1**

Answer: **42**

Question 38

lists pairs systematically **M1**

23 cao **A1**

Answer: **23**

Question 39

uses the mean or tests numbers **M1**

34 cao **A1**

Answer: **34**

Question 40

finds the amount for 1 person or a scale factor **M1**

375 g cao **A1**

Answer: **375 g**

Question 41

lists pairs systematically **M1**

16 cao **A1**

Answer: **16**

Question 42

63 - 21 = 42 seen **M1**

21 cao **A1**

Answer: **21**

Question 43

tests pairs or halves the sum and difference **M1**

2 and 12 cao **A1**

Answer: **2 and 12**

Question 44

3 x 8 = 24 seen **M1**

16 cao **A1**

Answer: **16**

Question 45

93 - 13 = 80 seen **M1**

40 cao **A1**

Answer: **40**

Question 46

99 divided by 11 = 9 seen **M1**

27 cao **A1**

Answer: **27**

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Question 47

9 divided by 1 = 9 seen	**M1**
63 cao	**A1**

Answer: **63**

Question 48

664 divided by 8 = 83 seen	**M1**
£3.32 cao	**A1**

Answer: **£3.32**

Question 49

works out a cost per pack for each option	**M1**
3 cao	**A1**

Answer: **3**

Question 50

3 x 7 or 4 x 8 seen	**M1**
53 cao	**A1**

Answer: **53**

Question 51

28 cao	**B1**

Answer: **28**

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