# 1.8 Reasoning and Problem Solving (Year 4): Test Pack

Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** Liam has 245 stickers. He gives 38 stickers to Mia and 17 stickers to Noah. How many stickers does Liam have left?

**(2)**

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**2** I am thinking of a 3-digit number. Here are some clues.

Clue 1: It has a digit sum of 14.
Clue 2: It has an even ones digit.
Clue 3: It has hundreds digit 8.
Clue 4: It has tens digit twice the ones digit.

What is my number?

Answer: ___

**(2)**

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**3** Victor buys 3 notebooks at £3.52 each and 3 buns at £1.29 each. Victor pays with £15.

How much change does Victor get?

Answer: £___

**(2)**


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**4** A bottle holds 1.5 litres of juice. How many millilitres is this? Then, if a glass holds 250 ml, how many full glasses can be filled from one bottle?

**(a)** Convert 1.5 litres to millilitres. **(1)**

**(b)** How many full 250 ml glasses can be filled from the bottle? **(1)**

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**5** Isla has 11 more marbles than Willow. Together they have 73 marbles.

How many marbles does Willow have?

Answer: ___

**(2)**

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**6** A class has 30 pupils. Two fifths of the class go on a trip. How many pupils go on the trip?

**(2)**

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**7** A farmer sorts 360 apples into boxes. He puts 9 apples in each small box and 30 apples in each crate. He uses only full boxes and crates and wants to use exactly 360 apples. Suggest one possible number of crates and small boxes he could use. Show how you know your answer is correct.

**(3)**


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**8** Explain why the number 48 can be made by adding three consecutive even numbers. Give an example and show the calculation.

**(3)**

**9** A stadium has 4,985 seats. On Saturday, 3,102 of the seats were sold. Round each number to the nearest 100 to estimate how many seats were not sold.

**(2)**

**10** A bag holds 63 beads. Two ninths of the beads are red and four ninths of the beads are blue. The rest of the beads are yellow. How many yellow beads are in the bag?

**(2)**

**11** A pack of 6 notebooks costs £2.70. A pack of 10 of the same notebooks costs £4.20. Which pack is better value for money? Show how you know.

**(3)**

**12** Sofia reads 36 pages each day. How many days will it take her to read a book of 252 pages?

**(2)**


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**13** Zara has 30 more marbles than Callum. Together they have 64 marbles.

How many marbles does Callum have?

Answer: ___

**(2)**

---

**14** Bella has 77 keyrings and puts 7 in each box. How many boxes are filled?

Answer: ___

**(1)**

---

**15** Oscar buys 3 sandwiches at £2.87 each and 4 magnets at £3.29 each. Oscar pays with £25.

How much change does Oscar get?

Answer: £___

**(2)**

---

**16** In a class of 27 pupils, 8 like swimming, 18 like cycling and 6 like both.

How many pupils like neither?

Answer: ___

**(2)**


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**17** Amira has 4,611 marbles. Amira is given 930 more and then gives away 5,445.

How many marbles does Amira have now?

Answer: ___

**(2)**

---

**18** A rectangle has a perimeter of 108 m. Its length is 34 m.

What is its width?

Answer: ___ m

Diagram NOT accurately drawn




**(2)**

---

**19** A museum had 9,732 visitors on Saturday and 3,762 visitors on Sunday.

How many more visitors came on the busier day?

Answer: ___

**(2)**


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**20** A rectangle is 33 cm long and 19 cm wide.

What is its perimeter?

Answer: ___ cm

**(2)**

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**21** A toy costs £4.75. Mary has £15. How many toys can she buy and how much change will she have left? Give the change in pounds and pence.

**(2)**

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**22** Oscar has 48 postcards and puts 12 in each box. How many boxes are filled?

Answer: ___

**(1)**


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# Mark scheme · 1.8 Reasoning and Problem Solving (Year 4): Test Pack

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

## Question 1

| | |
|---|---|
| Subtract 38 and 17 from 245 (correct subtraction seen) | M1 |
| 190 cao | B1 |

Answer: **190**

## Question 2

| | |
|---|---|
| uses at least two conditions to cut down the list | M1 |
| 842 cao | A1 |

Answer: **842**

## Question 3

| | |
|---|---|
| 10.56 seen | M1 |
| £0.57 cao | A1 |

Answer: **£0.57**

## Question 4

| | |
|---|---|
| (a) 1500 ml cao | B1 |

(a) Answer: **1500**

| | |
|---|---|
| (b) 6 cao | B1 |

(b) Answer: **6**

## Question 5

| | |
|---|---|
| 73 - 11 = 62 seen | M1 |
| 31 cao | A1 |

Answer: **31**

## Question 6

| | |
|---|---|
| Find 1/5 = 30 ÷ 5 = 6 or use fraction of 30: (2/5) x 30 seen | M1 |
| 12 cao | B1 |

Answer: **12**

## Question 7

| | |
|---|---|
| Show a correct combination that sums to 360 using 9s and 30s (for example 6 crates x 30 = 180 and 20 small boxes x 9 = 180, or any other correct split) | M1 |
| State a valid combination clearly (e.g. 6 crates and 20 small boxes) | B1 |
| Calculation check shown to prove total 360 cao | B1 |

Answer: **One possibility: 6 crates and 20 small boxes**

## Question 8

| | |
|---|---|
| Show general reasoning or calculation using consecutive even numbers (e.g. let numbers be n, n+2, n+4 or find specific three even numbers) | M1 |
| Give a correct example of three consecutive even numbers that add to 48 (e.g. 14, 16, 18) | B1 |
| Show correct addition to make 48 (14 + 16 + 18 = 48) cao | B1 |

Answer: **For example 14, 16 and 18. 14 + 16 + 18 = 48**

## Question 9

| | |
|---|---|
| both numbers rounded to the nearest 100: 5,000 and 3,100 | M1 |
| 1,900 cao | A1 |

Answer: **1,900**

## Question 10

| | |
|---|---|
| finds one of the amounts: 2/9 of 63 = 14, or 4/9 of 63 = 28, or 6/9 of 63 = 42, or 3/9 of 63 = 21 | M1 |
| 21 cao | A1 |

Answer: **21**

## Question 11

| | |
|---|---|
| finds the cost of one notebook in either pack: 270 / 6 = 45p or 420 / 10 = 42p | M1 |
| finds the cost of one notebook in both packs (45p and 42p), or compares the cost of the same number of notebooks, e.g. 30 notebooks: 5 x £2.70 = £13.50 and 3 x £4.20 = £12.60 | M1 |
| the pack of 10, with a correct comparison (42p is less than 45p, or £12.60 is less than £13.50) oe | A1 |

Answer: **The pack of 10 (42p each, against 45p each)**

## Question 12

| | |
|---|---|
| Division 252 ÷ 36 or grouping shown | M1 |
| 7 cao | B1 |

Answer: **7**

## Question 13

| | |
|---|---|
| 64 - 30 = 34 seen | M1 |
| 17 cao | A1 |

Answer: **17**

## Question 14

| | |
|---|---|
| 11 cao | B1 |

Answer: **11**

## Question 15

| | |
|---|---|
| 8.61 seen | M1 |
| £3.23 cao | A1 |

Answer: **£3.23**

## Question 16

| | |
|---|---|
| 8 + 18 - 6 = 20 seen | M1 |
| 7 cao | A1 |

Answer: **7**

## Question 17

| | |
|---|---|
| 5,541 seen | M1 |
| 96 cao | A1 |

Answer: **96**

## Question 18

| | |
|---|---|
| 108 - 68 = 40 seen | M1 |
| 20 m cao | A1 |

Answer: **20 m**


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## Question 19

| | |
|---|---|
| subtraction method seen | **M1** |
| 5,970 cao | **A1** |

Answer: **5,970**

## Question 20

| | |
|---|---|
| adds all four sides or doubles l + w | **M1** |
| 104 cm cao | **A1** |

Answer: **104 cm**

## Question 21

| | |
|---|---|
| Division or repeated subtraction to find 3 toys (3 x 4.75 = 14.25) seen | **M1** |
| 3 toys and 75p change (14.25 subtracted from 15 gives 0.75) cao | **B1** |

Answer: **3 toys, £0.75**

## Question 22

| | |
|---|---|
| 4 cao | **B1** |

Answer: **4**


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