KS2.M-Y3R1 Reasoning and Problem Solving

Total Marks

Calculators not allowed · about 50 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write the answer to 145 + 27.

(1)

2 Write the answer to 302 - 89.

(1)

3 Amelia has 12 red pens and 8 blue pens. She buys 3 more packs of red pens with 4 pens in each pack. How many pens does she have now?

(2)

4 Complete the missing number: 70 - ? = 28

(1)

5 The bus leaves at 09:15 and the journey takes 1 hour 25 minutes. What time does the bus arrive?

(2)

6 Work out 6 x 4.

(1)

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7 Yusuf shares 18 stickers equally between 3 friends. How many stickers does each friend get? Show your method.

(2)

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8 What is 1/4 of 28?

(1)

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9 Oliwia buys a sandwich for 95p and a drink for 60p. She pays with a £2 coin. How much change should she get?

(2)

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10 A rope is 1 m 25 cm long and another rope is 75 cm long. What is their total length in centimetres?

(2)

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11 Here are two numbers: 204 and 240. Explain which number is greater and say why using place value language.

(2)

12 A teacher puts 24 counters into 6 equal groups to make classroom games. After that she makes 4 piles of counters with the same number in each pile using all the counters. How many counters are in each of the 4 piles?

(3)

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13 Complete the pattern: 5, 10, 15, ?, 25

(1)

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14 A bottle holds 1 litre of water. How many millilitres are in 1 litre and 250 millilitres?

(2)

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15 A rectangle has length 9 cm and width 4 cm. What is the perimeter of the rectangle?

(2)

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16 A small chart shows how many books each child read last week: Amy 3, Ben 5, Chi 2, Dev 5. Explain how many more books Ben read than Chi and show your working.

(2)

17 There are 45 children in three classes. Each class has the same number of children. How many children are in each class? Then one child moves schools, so one class now has one fewer child. How many children are in that class now?

(3)

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18 Stretch question. Priya has three boxes. Each box holds 8 toy cars. She wants to share all the toy cars equally between 5 children. What is the maximum whole number of cars each child can get and how many cars will be left over? Show your working.

(4)

Mark scheme · KS2.M-Y3R1 Reasoning and Problem Solving

Question 1

- **B1** 172 cao
- Answer: **172**

Question 2

- **B1** 213 cao
- Answer: **213**

Question 3

- **M1** Correct method seen: 3 x 4 = 12 or equivalent
- **B1** 32 pens cao
- Answer: **32**

Question 4

- **B1** 42 cao
- Answer: **42**

Question 5

- **M1** Correct addition of hours and minutes, e.g. 09:15 + 1:25 shown
- **B1** 10:40 cao
- Answer: **10:40**

Question 6

- **B1** 24 cao
- Answer: **24**

Question 7

- **M1** Correct division or grouping shown, e.g. 18 ÷ 3 = 6 or 3 groups of 6
- **B1** 6 cao
- Answer: **6**

Question 8

- **B1** 7 cao
- Answer: **7**

Question 9

- **M1** Correct total cost calculated, e.g. 95p + 60p = 155p or £1.55
- **B1** 45p cao
- Answer: **45p**

Question 10

- **M1** Correct conversion of 1 m 25 cm to 125 cm and addition shown
- **B1** 200 cm cao
- Answer: **200 cm**

Question 11

- **M1** Mention of hundreds, tens or ones to compare, e.g. both have 2 hundreds but 240 has more tens
- **B1** Correct conclusion that 240 is greater (240 > 204) cao
- Answer: **240**

Question 12

- **M1** Recognise initial grouping gives 24 counters (24 = 6 x 4) or equivalent
- **M1** Correct division to change grouping, e.g. 24 ÷ 4 shown
- **B1** 6 cao
- Answer: **6**

Question 13

- **B1** 20 cao
- Answer: **20**

Question 14

- **M1** Correct conversion of 1 litre to 1000 ml and addition shown
- **B1** 1250 ml cao
- Answer: **1250 ml**

Question 15

- **M1** Correct addition or method shown, e.g. 2 x (9 + 4) or 9 + 9 + 4 + 4
- **B1** 26 cm cao
- Answer: **26 cm**

Question 16

- **M1** Correct subtraction shown, e.g. 5 - 2 = 3 or equivalent reasoning
- **B1** 3 books cao
- Answer: **3**

Question 17

- **M1** Correct division 45 ÷ 3 = 15 or equivalent shown
- **M1** Recognition of subtraction 15 - 1 = 14 or equivalent shown
- **B1** Answers 15 and 14 cao
- Answer: **15 and 14**

Question 18

- **M1** Correct total cars calculated, e.g. 3 x 8 = 24
- **M1** Correct division 24 ÷ 5 shown with whole number and remainder
- **M1** Correct identification of whole number per child, e.g. 4 each
- **B1** Remainder stated: 4 cars left over cao
- Answer: **4 each, 4 left over**