2.22-3 Multi-Step Reasoning Challenge Set 3: Test Pack

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The first term of a sequence is 3 and the second term is 4. Every term after that is found by adding the two previous terms together and then adding 2. Find the sixth term of the sequence.

(3)

---

2 A number has 5 added to it. The result is multiplied by 3, then 6 is subtracted, and finally the result is divided by 3, giving a final answer of 11. Work out the original number.

(3)

---

3 A jug holds 15 litres of squash made from cordial and water mixed in the ratio 1:4 (cordial:water). Extra cordial is added, without adding any more water, to strengthen the mixture to a ratio of 1:2. How many litres of cordial must be added?

(3)

© Revision Library | revisionlibrary.co.uk

4 Using the digits 1, 3, 5, 7 and 9, how many three-digit numbers can be formed that are multiples of 5, if all three digits in the number must be different?

(3)

---

5 At a school fair, three stalls - Toys, Sweets and Raffle - each raised a different amount of money: £18, £36 and £54.

- The Raffle stall raised exactly twice as much as the Toys stall.
- The Sweets stall did not raise the least amount.

Work out how much money each stall raised.

(4)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 2.22-3 Multi-Step Reasoning Challenge Set 3: Test Pack

Question 1

finds the third and fourth terms: 3 + 4 + 2 = 9, then 4 + 9 + 2 = 15 (oe)	**M1**
finds the fifth term: 9 + 15 + 2 = 26 (oe)	**M1**
43 cao, from 15 + 26 + 2	**A1**

Answer: 43

Question 2

undoes the final division: 11 x 3 = 33 (oe)	**M1**
undoes the subtraction and multiplication: 33 + 6 = 39, then 39 / 3 = 13 (oe)	**M1**
8 cao, from 13 - 5	**A1**

Answer: 8

Question 3

finds the current amounts: cordial = 3 litres, water = 12 litres, from the ratio 1:4 of 15 litres (oe)	**M1**
forms the equation (3 + x):12 = 1:2, where x is the cordial added (oe)	**M1**
3 litres cao	**A1**

Answer: 3 litres

Question 4

recognises the units digit must be 5, the only multiple of 5 available (oe)	**M1**
finds the hundreds digit has 4 choices and the tens digit has 3 remaining choices (oe)	**M1**
12 cao	**A1**

Answer: 12

Question 5

tests each pair of the three values for a doubling relationship and finds only 18 and 36 work, since 36 = 2 x 18 (oe)	**M1**
Toys = £18 and Raffle = £36 cao	**A1**
Sweets must be the remaining value, £54, cao	**B1**
checks Sweets (£54) is not the least amount, since the least is Toys (£18), so the clue is satisfied (oe)	**B1**

Answer: Toys £18, Raffle £36, Sweets £54

© Revision Library | revisionlibrary.co.uk