2.15-2 Logic and Puzzle Problems: Practice Set 2: Test Pack

Total Marks

GL ASSESSMENT GL11-MATHS-LOGIC · Calculators not allowed · about 15 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A rule connects pairs of numbers: 4 is linked to 15, and 7 is linked to 27.

(a) Find the rule connecting the number n to its linked value, giving your answer in the form an+b. **(2)**

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(b) Using your rule, find the value linked to 10. **(1)**

.....

(c) Find the value of n whose linked value is 59. **(2)**

.....

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2 Five pupils - Farah, Ben, Chidi, Diya and Ewan - each prefer a different drink: Tea, Coffee, Juice, Milk and Water. (1) Ben drinks Coffee. (2) Chidi drinks neither Tea nor Water. (3) Diya drinks Milk. (4) Farah does not drink Water. (5) Ewan does not drink Juice. Work out which drink each pupil prefers.

(4)

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3 Six friends - Beatrice, Mia, Connor, Deepak, Willow and Tariq - sit at a round table with six evenly spaced seats, numbered 1 to 6 clockwise. Seats directly opposite each other differ by 3 (for example, seat 1 is opposite seat 4). Use these clues: (1) Beatrice is directly opposite Deepak. (2) Willow sits immediately clockwise of Beatrice. (3) Connor sits immediately anticlockwise of Beatrice. (4) Tariq sits immediately clockwise of Deepak. (5) Mia is not seated immediately next to Connor.

(a) Complete the seating order, listing all six friends clockwise starting from Beatrice. **(3)**

(b) State who sits directly opposite Tariq. **(1)**

(c) State who sits immediately clockwise of Mia. **(1)**

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4 Look at the number sequence: 4, 9, 14, 19, ... What is the next number in the sequence?

- ☐ A) 24
- ☐ B) 23
- ☐ C) 20
- ☐ D) 29
- ☐ E) 25

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5 Freya is younger than Harun. Harun is younger than Isla. Which statement must be true?

- ☐ A) Isla is younger than Freya
- ☐ B) Freya and Isla are the same age
- ☐ C) Not enough information to tell
- ☐ D) Harun is the youngest
- ☐ E) Freya is younger than Isla

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Mark scheme · 2.15-2 Logic and Puzzle Problems: Practice Set 2: Test Pack

Question 1

(a) set up 4a+b=15 and 7a+b=27 and solve simultaneously (oe)	**M1**
(a) rule 4n-1 cao	**A1**
(a) Answer: 4n-1	
(b) 39 cao (ft from a)	**B1**
(b) Answer: 39	
(c) 4n-1=59 (ft from a)	**M1**
(c) n=15 cao	**A1**
(c) Answer: 15	

Question 2

Ben drinks Coffee and Diya drinks Milk, directly from clues 1 and 3 (oe)	**M1**
Chidi drinks Juice, since clue 2 rules out Tea and Water and Coffee/Milk are already taken (oe)	**M1**
Farah drinks Tea, since clue 4 rules out Water and Juice is taken, leaving Ewan with Water (oe)	**M1**
full correct set: Farah-Tea, Ben-Coffee, Chidi-Juice, Diya-Milk, Ewan-Water	**A1**

Answer: Farah - Tea, Ben - Coffee, Chidi - Juice, Diya - Milk, Ewan - Water

Question 3

(a) place Beatrice at seat 1, Deepak opposite at seat 4, Willow at seat 2, Connor at seat 6 (oe)	**M1**
(a) place Tariq at seat 5, leaving Mia at seat 3 (oe)	**M1**
(a) Beatrice, Willow, Mia, Deepak, Tariq, Connor cao	**A1**
(a) Answer: Beatrice, Willow, Mia, Deepak, Tariq, Connor	
(b) Willow cao (ft from a)	**B1**
(b) Answer: Willow	
(c) Deepak cao (ft from a)	**B1**
(c) Answer: Deepak	

Question 4

identify the common difference of 5 (oe)	**M1**
24 cao	**A1**

Answer: 24

Question 5

combine the two given inequalities correctly (oe)	**M1**
E cao	**A1**

Answer: E) Freya is younger than Isla

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