Answers - Position, direction and patterns

Year: Year 2

Answer to Question 1

a. Pattern 1: the unit is circle, circle, square. The missing shape is a **circle**, then comes a square.
b. Pattern 2: the unit is triangle, square. The missing shape is a **square**.
c. Pattern 3: the unit is circle, square, triangle. The missing shape is a **square**, then comes a triangle.

Answer to Question 2

a. Add 3: **15, 18**.
b. Take away 5: **30, 25**.
c. Add 2: **10, 12**.
d. Add 10: **50, 60**.
e. Take away 3: **59, 56**.

Answer to Question 3

a. The letter **S**.
b. T is in column B and row 2: **B2**.
c. U is in column D and row 1: **D1**.
d. Above T is row 3, and to the right is column C: the letter **V** (at C3).
e. **U** is on the bottom row.

Answer to Question 4

a. A1 → right 3: **D1**.
b. A1 → up 2: **A3**.
c. A1 → right 2 → up 1: **C2**.
d. A1 → right 3 → up 2: **D3**.

Answer to Question 5

a. North, then a quarter turn clockwise: **east**.
b. North, then a half turn: **south**.

c. North, then three-quarters clockwise: **west**.
d. A whole turn brings you back to **north**.
e. **2** quarter turns make a half turn.

Answer to Question 6

a. The number of sticks goes up by 2 each time. The rule is **add 2**.
b. 4 triangles: 7 + 2 = **9**. 5 triangles: 9 + 2 = **11**.
c. 6 triangles: 13. 7 triangles: 15. 8 triangles: **17 sticks**.

Answer to Question 7

a. red, red, blue, yellow, red, red, blue, yellow.
b. The 9th bead starts the next unit, so it is **red**.
c. The unit has 4 beads. 20 ÷ 4 = **5 full units**.
d. The 20th bead is the end of the 5th unit, so it is **yellow**.

Answer to Question 8

a. Ship **A1**, palm tree **B2**, rock **C1**, treasure **D3**.
b. 3 squares right from A1 is D1. There is nothing on D1 on this map.
c. 2 squares up from D1 is **D3**, which is the treasure.
d. Move **3 squares right and 2 squares up**.

Answer to Question 9

a. 2 + 3 + 1 = **6 steps**.
b. A half turn is 2 quarter turns, so a quarter turn and a half turn make 3 quarter turns, which is **three-quarters of a turn**.
c. There are **2 turns** (a quarter turn and a half turn), and **1** of them is a half turn.
d. A whole turn brings them back to **the same direction**.

Answer to Question 10

a. The unit is **blue, white, white**, which has 3 tiles.
b. 18 ÷ 3 = **6 units**.
c. Each unit has 1 blue tile, so there are **6 blue tiles**.
d. Tile 9 ends the 3rd unit. Tile 10 starts the 4th unit, so it is **blue**.

Answer to Question 11

a. The rule is **add 10p** each week.
b. Week 4: **40p**. Week 5: **50p**. Week 6: **60p**.
c. 60 − 10 = **50p more** in week 6.
d. Week 4 is 40p, which is not more than 45p. Week 5 is 50p, so it is **week 5**.

Answer to Question 12

a. The seats go up by 2 each row. The rule is **add 2**.
b. Row 4: 10. Row 5: 12. Row 6: **14 seats**.
c. 14 − 4 = **10 more seats**.
d. 2 places right of A: B, C. The seat is **C**.

Answer to Question 13

a. 3, 6, 9, 12, 15, 18, 21, 24.
b. **8** numbers, because 8 × 3 = 24.
c. 40, 35, 30, 25, 20, 15, 10, 5, 0.
d. 15 is in the 3s (3, 6, 9, 12, 15) and in the 5s (5, 10, 15), so the number is **15**.

Answer to Question 14

a. The walls are in **B2 and C2**.
b. A1, then right 3: **D1**. Yes, it is safe, because D1 is not a wall.
c. D1, then up 2: **D3**, which is the flag.
d. **Right 3, then up 2.**
e. Up 2 from A1 is A3. Then right 3 passes B3, C3, D3. There are no walls on row 3, so **yes, it is possible**.

Answer to Question 15

a. Each bed has 3 more: **add 3**.
b. Bed 4: 14. Bed 5: 17. Bed 6: **20**.
c. 5 + 8 + 11 + 14 + 17 + 20 = 13 + 11 + 14 + 17 + 20 = 24 + 14 + 17 + 20 = 38 + 17 + 20 = **75 flowers**.
d. She needs 75 and has 70. 70 is less than 75, so she does **not** have enough.
e. 75 − 70 = **5 more flowers** are needed.

Answer to Question 16

a. The tower grows by 2 cubes each time: **add 2**.
b. Tower 4: 8. Tower 5: **10**.
c. The towers next to tower 3 are **tower 2 and tower 4**.
d. 2 + 4 + 6 + 8 + 10 = **30 cubes**.
e. Tower 10 has 10 × 2 = 20 cubes (the tower number times 2). 20 is not 21, so Ali is **not right**.

Answer to Question 17

a. 10 + 6 + 4 = **20 steps**.
b. 20 + 4 = **24 steps**.
c. The right turn and the left turn are quarter turns, so there are **2 quarter turns**.
d. Yes. They walked 4 steps and then turned round and walked the same 4 steps back, so they are back at the place where they turned left.
e. No. They are at the end of the 6-step part of the walk, which is 10 steps forward and 6 steps to the right of the gate, so they do **not** end up at the main gate.

Answer to Question 18

a. 40 ÷ 5 = **8 pictures**.
b. The unit has 4 pictures. 8 ÷ 4 = **2 units**.
c. Each unit has 2 stars: 2 × 2 = **4 stars**.
d. Unit 2: star (5th), heart (6th), star (7th). The 7th picture is a **star**.
e. 2 units of 4 pictures = **8 pictures**, and 8 × 5 = **40 cm**.

Answer to Question 19

a. 3 + 4 = **7 stops**.
b. 2 + 1 = **3 stops**.
c. 7 − 3 = **4 stops** forward of the school.
d. The bus is **ahead** of the school, because it went forward 7 and back only 3.
e. The library is 3 − 2 = 1 stop ahead of the school. The bus then goes 4 stops forward to the park, so there are **4 stops** between the library and the park.

Answer to Question 20

a. 2, 5, 8, 11, 14, 17, 20, 23. The 8th number is **23** (add 3 each time).
b. The unit has 3 shapes. 20 ÷ 3 = 6 remainder 2. After 6 full units the 2nd shape is a square. The 20th shape is a **square**.

c. A1 → right 2 → C1 → up 3 → C4 → left 1 → B4 → down 2 → **B2**.
d. Counting in 4s: 4, 8, 12, 16. 12 is right, but 15 is not in the 4 times table. **15 is wrong**.