Test answers - Coordinates and translation

Year: Year 4 · Duration: 35 minutes · /20

Answer to Question 1 (4 marks)

a. Read along the horizontal axis first, then up the vertical axis (along the corridor, then up the stairs). A is 2 along and 4 up: **A (2, 4)**. B is 5 along and 1 up: **B (5, 1)**. C is 0 along and 3 up: **C (0, 3)** (3 marks: 1 for each point).
b. A point on the vertical axis has not moved along at all, so its x-coordinate is 0. That point is **C** (1 mark).

Answer to Question 2 (4 marks)

a. Two corners have y = 2 and two corners must have y = 5; two corners have x = 6 and two must have x = 1. The missing corner is **(1, 5)** (1 mark).
b. The width is 6 − 1 = 5 units and the height is 5 − 2 = 3 units. Perimeter = 5 + 3 + 5 + 3 = **16 units** (2 marks: 1 for the side lengths, 1 for 16).
c. Area = width × height = 5 × 3 = **15 square units** (1 mark). Counting the squares inside the rectangle on the grid gives the same answer.

Answer to Question 3 (4 marks)

a. Moving right adds to the x-coordinate and moving up adds to the y-coordinate: (2 + 4, 3 + 2) = **(6, 5)** (1 mark).
b. Moving left subtracts from x and moving down subtracts from y: (7 − 3, 5 − 1) = **(4, 4)** (1 mark).
c. Compare the x-coordinates: 1 to 5 is 4 more, so **4 right**. Compare the y-coordinates: 6 to 2 is 4 less, so **4 down**. The translation is 4 right and 4 down (2 marks: 1 for each direction).

Answer to Question 4 (4 marks)

a. Add 2 to every x-coordinate and 3 to every y-coordinate. P (1, 1) becomes **P′ (3, 4)**, Q (4, 1) becomes **Q′ (6, 4)** and R (1, 3) becomes **R′ (3, 6)** (3 marks: 1 for each corner).
b. The base P′Q′ runs from x = 3 to x = 6, so it is 6 − 3 = **3 units**. The original base was 4 − 1 = 3 units: a translation slides a shape without changing its size (1 mark).

Answer to Question 5 (4 marks)

a. The gate (0, 0) and the cafe (5, 0) are on the same horizontal line, so the distance is $5 - 0 =$ **5 squares** (1 mark).
b. Cafe (5, 0) to pond (5, 4): same x, so $4 - 0 = 4$ squares up. Pond (5, 4) to playground (2, 4): same y, so $5 - 2 = 3$ squares left. Whole path: $5 + 4 + 3 =$ **12 squares** (2 marks: 1 for the three parts, 1 for 12).
c. Each square is 20 m: $12 \times 20 =$ **240 m** (1 mark).