Year 5 Coordinates and transformations topic test

12 questions | 21 marks | 30 minutes

Read, plot and move points, then explain transformations and symmetry. Grids use one-unit squares unless stated otherwise.

Equivalent correct methods earn the corresponding marks.

1. Name the horizontal and vertical axes. [2 marks]

The first coordinate is read on x and the second on y.

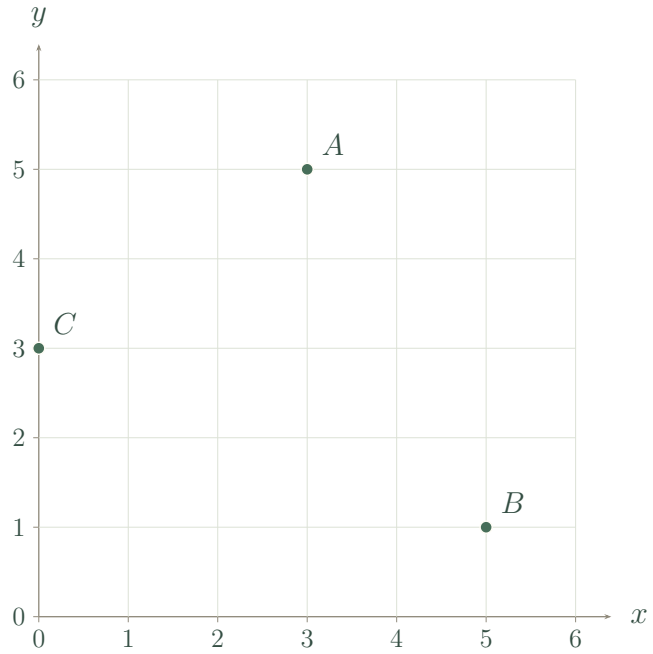
Answer: Horizontal: x-axis; vertical: y-axis.

2. An axis has equal intervals labelled 0, 2, 4, __, 8. Fill the gap. [1 mark]

Each interval increases by 2.

Answer: 6

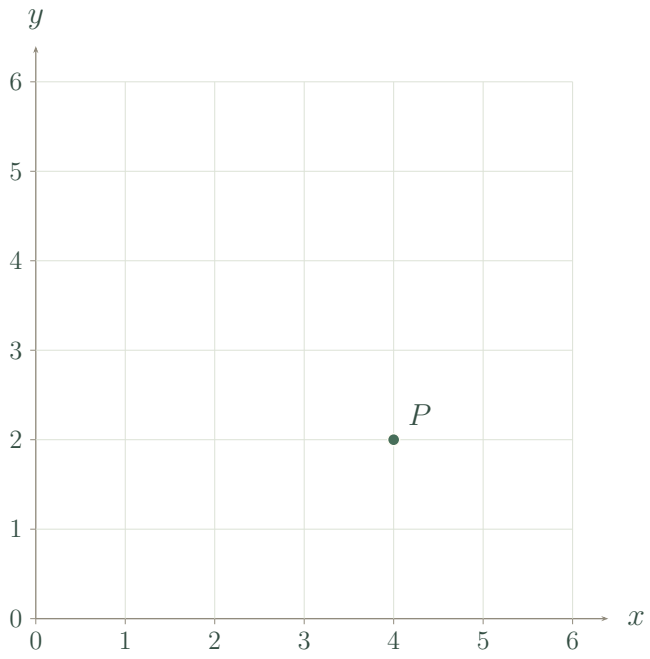
3. Read A from the supplied grid. [1 mark]



Read 3 along x, then 5 along y.

Answer: $(3, 5)$

4. Plot and label $P(4, 2)$ on the one-unit grid. [1 mark]



Use x before y.

Answer: P at 4 across and 2 up.

5. Which lies on the y-axis: $(3, 0)$, $(0, 3)$ or $(3, 3)$? [1 mark]

A y-axis point has $x = 0$.

Answer: $(0, 3)$

6. Start at $(2, 1)$, then move 3 right and 4 up. Find the endpoint. [2 marks]

$(2, 1) \to (5, 1) \to (5, 5)$.

Answer: $(5, 5)$

7. Give a horizontal/vertical route from $(5, 4)$ to $(1, 2)$, and its length along grid lines. [2 marks]

$4 + 2 = 6$ grid-line units.

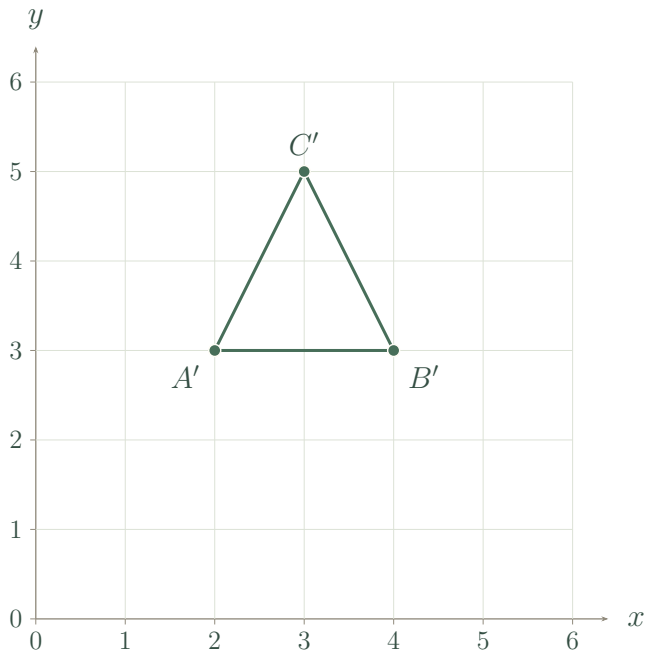
Answer: 4 left and 2 down; 6 units.

8. A robot finishes at $(4, 2)$ after moving left 2 and down 3. Find its start. [2 marks]

Reverse the route: up 3, then right 2.

Answer: $(6, 5)$

9. Translate $A(1, 2)$, $B(3, 2)$, $C(2, 4)$ by 1 right and 1 up. Give all image coordinates. [3 marks]

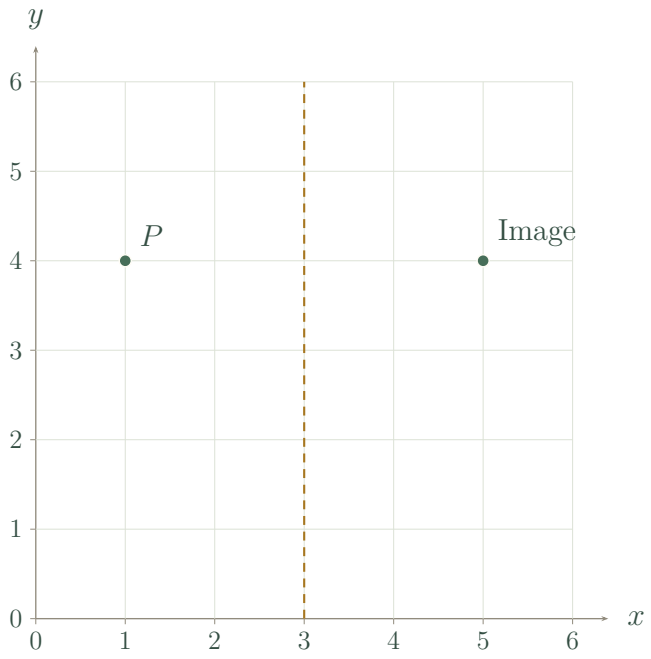


Add 1 to the x-coordinate and 1 to the y-coordinate of every vertex.

A: $(1 + 1, 2 + 1) = (2, 3)$. B: $(3 + 1, 2 + 1) = (4, 3)$. C: $(2 + 1, 4 + 1) = (3, 5)$.

Answer: $A'(2, 3)$, $B'(4, 3)$, $C'(3, 5)$.

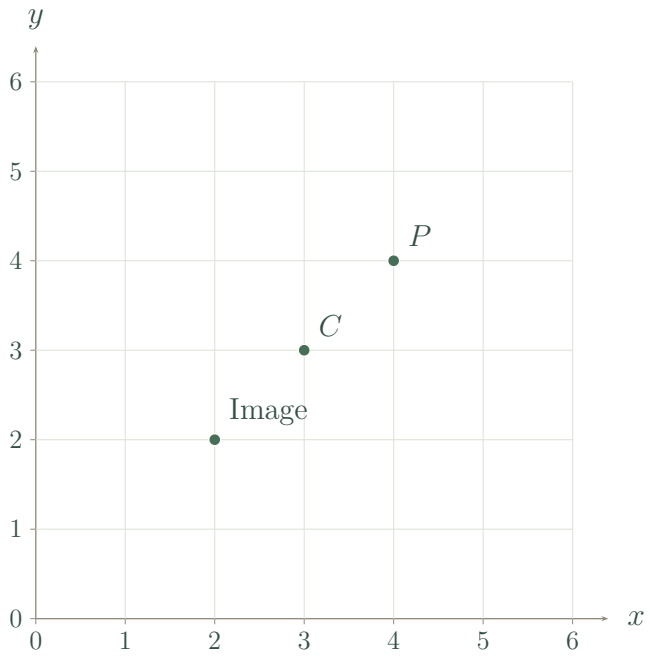
10. Reflect $P(1, 4)$ across $x = 3$. Find the image coordinates. [2 marks]



P is 2 left of the mirror; the image is 2 right at the same height.

Answer: $(5, 4)$

11. Rotate $P(4, 4)$ a half turn about $C(3, 3)$. Give its image coordinates. [2 marks]



The offset 1 right and 1 up becomes 1 left and 1 down.

Answer: $(2, 2)$

12. A diagonal divides a non-square rectangle into equal areas. Does that make it a symmetry line? Explain. [2 marks]

The whole outline must match under reflection.

Answer: No. Reflection across the diagonal does not match the long and short sides.