Testing congruence/similarity with transformations

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Translate point $(-2, 3)$ 5 units right and 2 units down. [2 marks]

$x = -2 + 5 = 3$ and $y = 3 - 2 = 1$.

Answer: $(3, 1)$.

2. Reflect point $(-3, 2)$ in the x axis. [2 marks]

The x coordinate stays -3; the y coordinate changes sign.

Answer: $(-3, -2)$.

3. Enlarge point $(2, -1)$ by factor 4 about the origin. [2 marks]

Multiply both coordinates by 4.

Answer: $(8, -4)$.

4. A triangle is rotated 90° without changing its size. Is the image congruent, similar, both or neither? [2 marks]

Rotation preserves lengths and angles.

Congruence is similarity with scale factor 1.

Answer: Both.

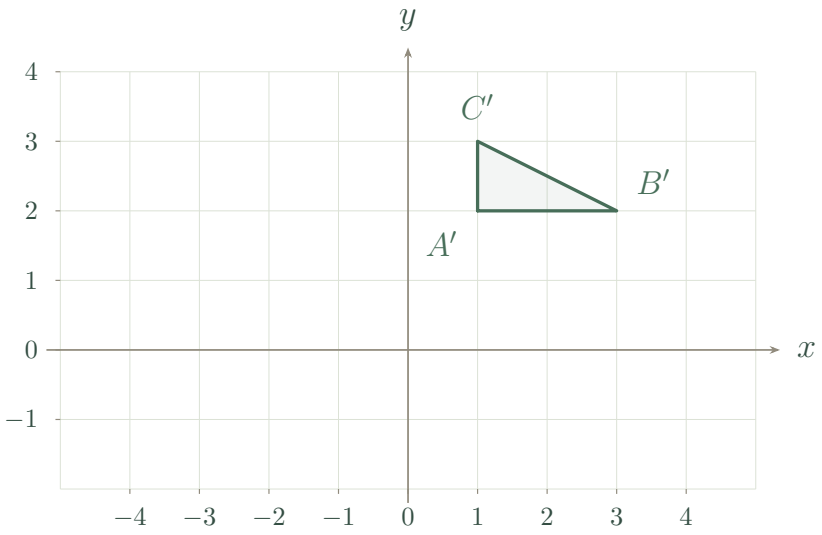
5. An image is stretched from width 4 cm and height 3 cm to width 8 cm and height 3 cm. Is it similar? Explain. [2 marks]

The width factor is 2 but the height factor is 1.

Corresponding dimensions do not share one factor.

Answer: No.

6. Triangle ABC has $A(0,0)$, $B(2,0)$, $C(0,1)$. Plot its image after translation 1 unit right and 2 units up. [3 marks]



Apply $(x, y) \mapsto (x+1, y+2)$ to all three vertices.

Plot and join the three image points.

Answer: $A'(1,2)$, $B'(3,2)$, $C'(1,3)$.