Enlargements using coordinates/digital geometry

6 questions | 15 marks

Equivalent correct methods earn the corresponding marks.

1. Enlarge $P(2, -3)$ by factor 2 from the origin. [2 marks]

$2 \times 2 = 4$; $2 \times (-3) = -6$.

Answer: $P'(4, -6)$.

2. Enlarge $Q(-6, 4)$ by factor $\frac{1}{2}$ from the origin. [2 marks]

Halve both coordinates.

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

3. Enlarge $A(1, 0)$, $B(3, 0)$, $C(1, 2)$ by factor 3 from the origin. [3 marks]

Multiply every coordinate by 3.

Both perpendicular sides triple.

Answer: $A'(3, 0)$, $B'(9, 0)$, $C'(3, 6)$.

4. Centre C is $(1, -1)$. Enlarge $P(3, 2)$ by factor 2. [3 marks]

$P - C = (2, 3)$.

Double to $(4, 6)$, then add C to get $(5, 5)$.

Answer: $P'(5, 5)$.

5. An enlargement from the origin maps $(2, 3)$ to $(6, 9)$. Find k. [2 marks]

$6 \div 2 = 3$ and $9 \div 3 = 3$. Both coordinates give the same factor.

Answer: 3

6. A student maps $(3, 1)$ to $(5, 3)$ and calls it factor 2 from the origin. Give the correct image and describe the student's movement. [3 marks]

The correct image doubles both coordinates.

The student added the same displacement to the point.

Answer: Correct image $(6, 2)$; the student translated by $(2, 2)$.