

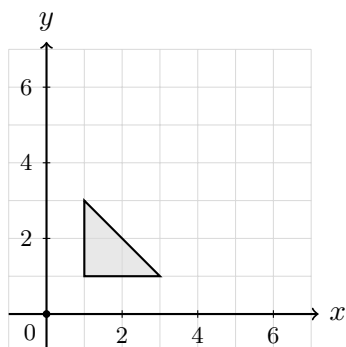
Foundation GCSE: Enlargements

Name: _____

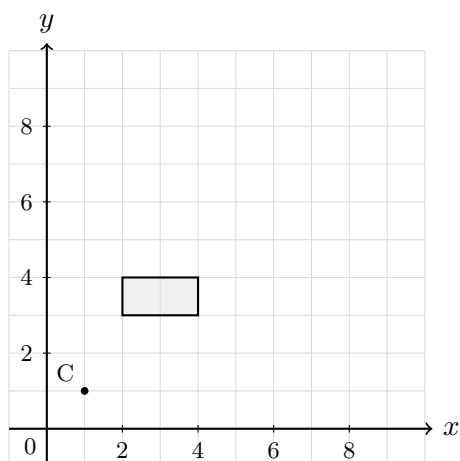
Class: _____

Instructions: Answer all questions. Each question features an accompanying grid diagram. Questions are ordered from easiest (1) to hardest (5). Working out should be shown where appropriate.

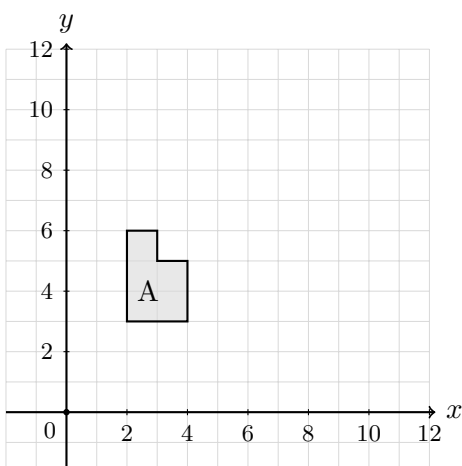
1. Enlarge the triangle by a scale factor of 2, using the origin $(0,0)$ as the centre of enlargement.



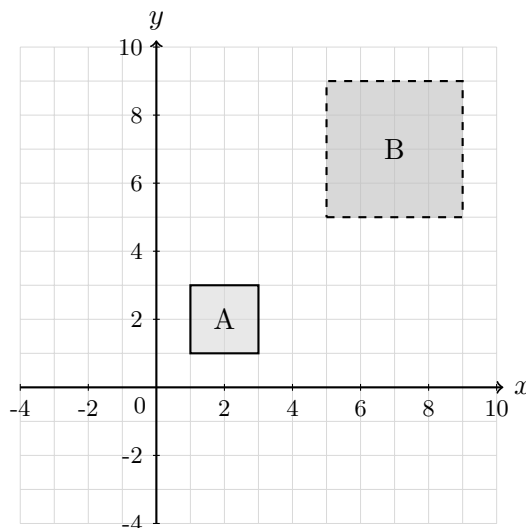
2. Enlarge the rectangle by a scale factor of 3, using the origin $(1, 1)$ as the centre of enlargement.



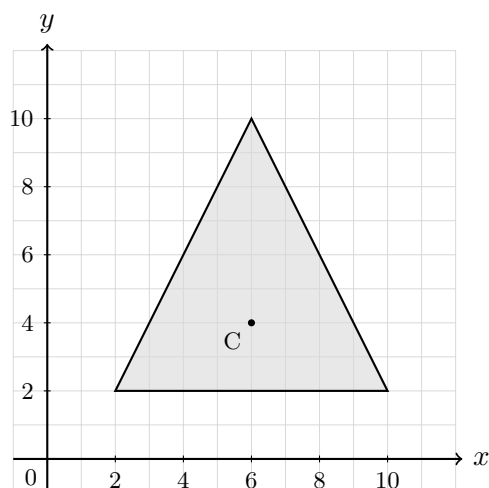
3. Enlarge shape A by a scale factor of 2, using centre of enlargement $(0,0)$. State the coordinates of the vertices of the image.



4. Describe fully the single transformation that maps square A onto square B.

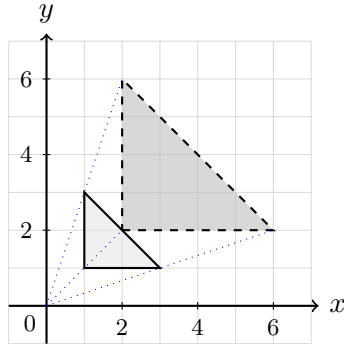


5. Enlarge the triangle by a fractional scale factor of $\frac{1}{2}$, using the centre of enlargement $(6, 4)$. State the coordinates of the vertices of the image.

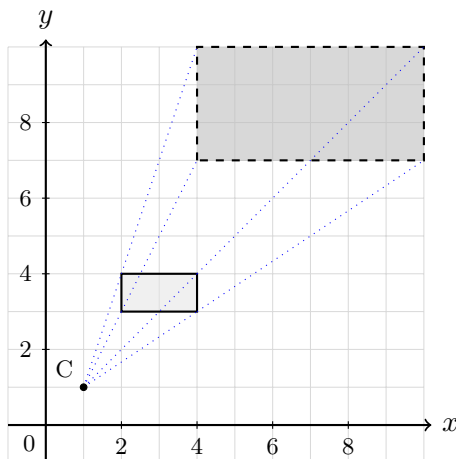


Answers & Worked Solutions

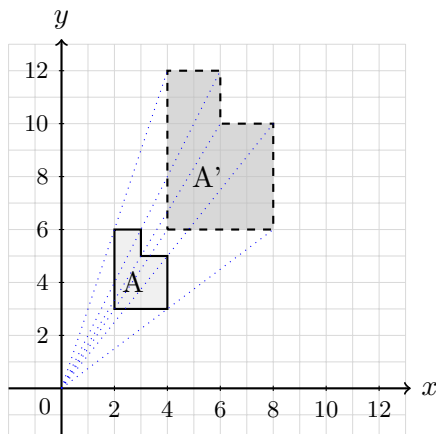
1. Multiply distances from origin $(0, 0)$ by scale factor 2: vertices move from $(1, 1)$, $(3, 1)$, $(1, 3)$ to $(2, 2)$, $(6, 2)$, $(2, 6)$.



2. Multiply vector distances from centre $(1, 1)$ by scale factor 3: vertices move from $(2, 3)$, $(4, 3)$, $(2, 4)$, $(4, 4)$ to $(4, 7)$, $(10, 7)$, $(4, 10)$, $(10, 10)$.

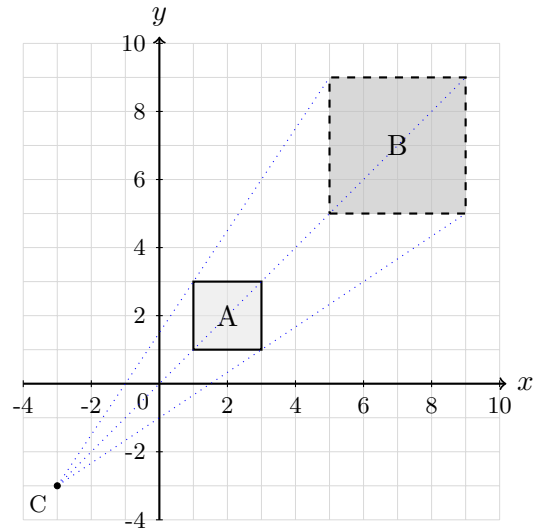


3. Vertices mapped via $(x, y) \rightarrow (2x, 2y)$: $(4, 6)$, $(8, 6)$, $(8, 10)$, $(6, 10)$, $(6, 12)$, $(4, 12)$.



4. Enlargement, scale factor 2, centre of enlargement $(-3, -3)$.

Explanation: Side lengths double and ray lines through corresponding corners meet at $(-3, -3)$.



5. Vertices mapped via vector method from centre $(6, 4)$ with scale factor $\frac{1}{2}$:

$$\mathbf{C} + \frac{1}{2}(\mathbf{V} - \mathbf{C})$$

Alternatively, the new vertices lie halfway along the ray lines extending from the centre of enlargement to each vertex of the original triangle. Vertices of the image: $(4, 3)$, $(8, 3)$, $(6, 7)$.

