Enlargement

- Finding the scale factor of an enlargement
- Enlarging an object by a given scale factor
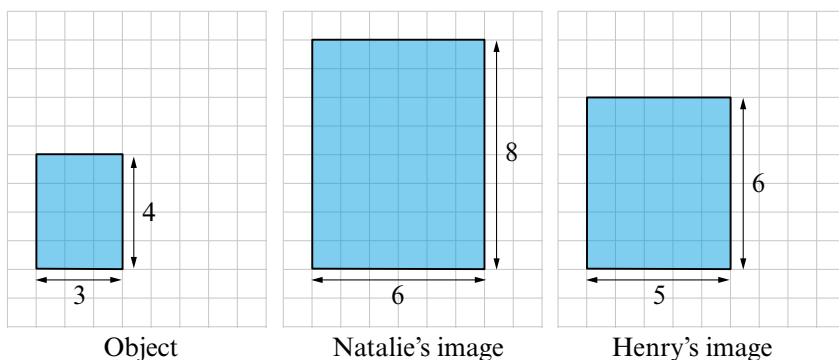
Keywords

You should know
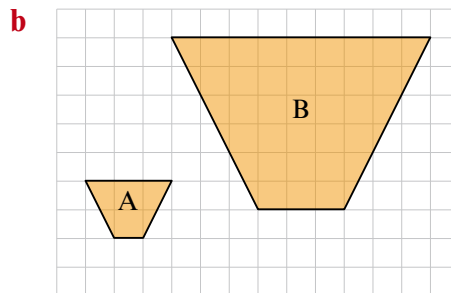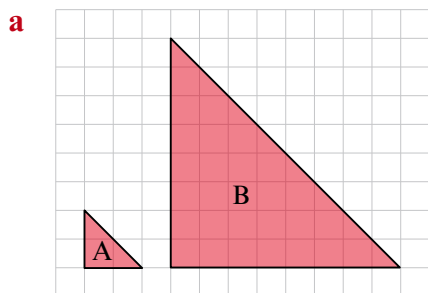
explanation 1a   explanation 1b

1 Natalie and Henry both tried to enlarge a rectangle by scale factor 2.
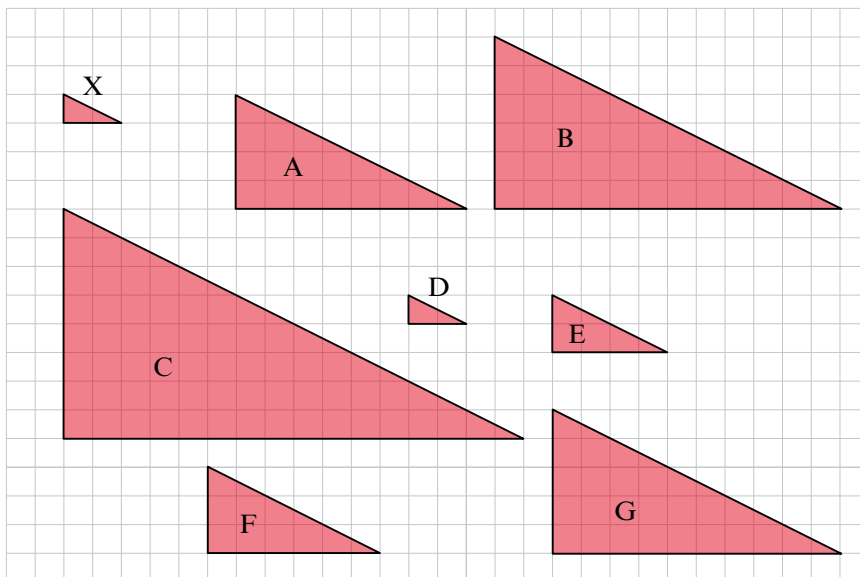The rectangle was 3 cm wide and 4 cm long. They got different answers.

| Object | Natalie's image | Henry's image |

a Whose answer is correct?

b How has Natalie worked out the length and width of her rectangle?

c How has Henry worked out the length and width of his rectangle?

d What does this tell you about working out enlargements?

e What would the lengths be if you were to enlarge the object by scale factor 3?

2 In each diagram shape B is an enlargement of shape A.
What is the scale factor of each enlargement?

a

b

3 Find the scale factor for each of the enlargements of triangle X.

   a X to A   **b** X to B   **c** X to C   **d** X to D

   e X to E   **f** X to F   **g** X to G

4 Look at the triangles in question **3**.
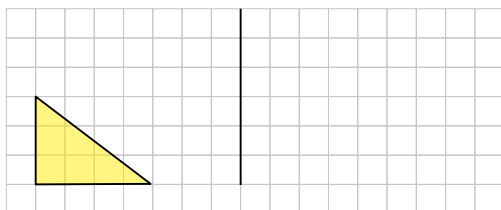Find the scale factor of each of these enlargements.

   a E to A   **b** A to C   **c** E to B   **d** F to B

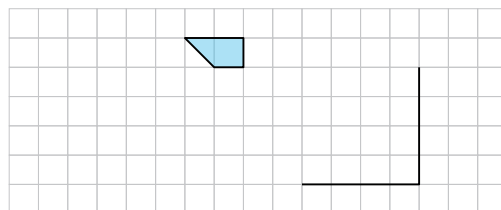   **e** E to C   **f** D to E   **g** D to X

explanation 2

5 Each diagram below shows a shaded object and part of its image after an enlargement.

The scale factors are given. Copy each diagram onto squared paper and complete the image.
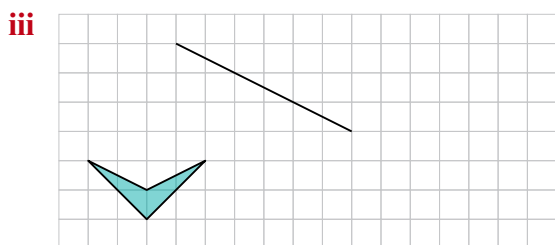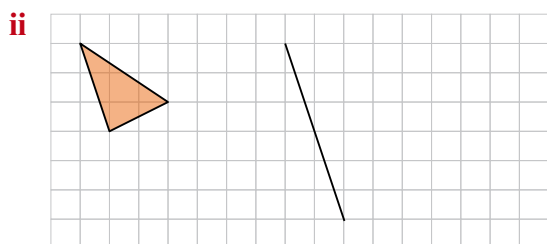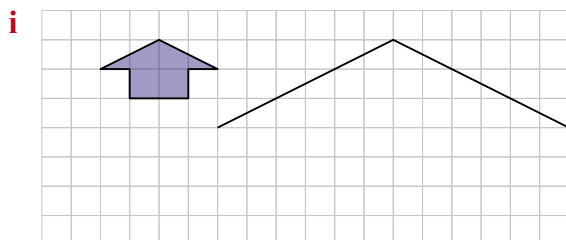
   a Scale factor 2   **b** Scale factor 4

6 Each diagram below shows a shaded object and part of its image after an enlargement.
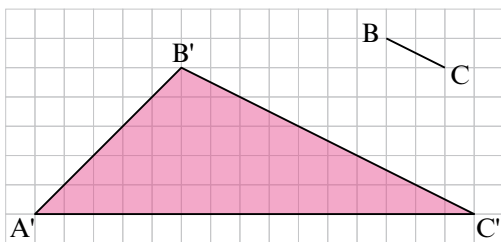
   a Work out the scale factor of each enlargement. Explain how you know.

   b Copy each diagram onto squared paper and complete the image.

   i

   ii

   iii

7 Dominic enlarged triangle ABC to give triangle A'B'C'.

   He accidentally rubbed out part of the original triangle ABC, as shown.

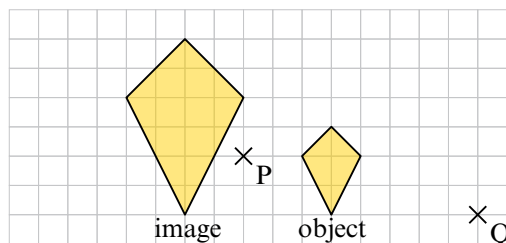   **a** What scale factor did Dominic use? Explain how you know.

   b Copy the diagram onto squared paper. Complete triangle ABC.

8 Look at the diagram. The object has been transformed to the image by an enlargement.

image   object

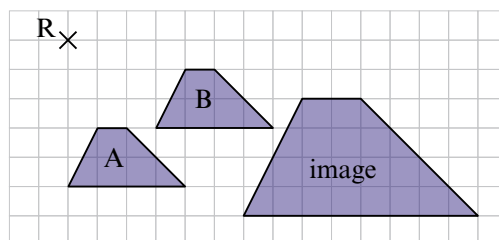**a** What is the scale factor of the enlargement? Explain how you know.

b Priya and Quentin cannot decide where the centre of enlargement is.
Priya says it is at P, because it must be between the object and the image.
Quentin says it is at Q.
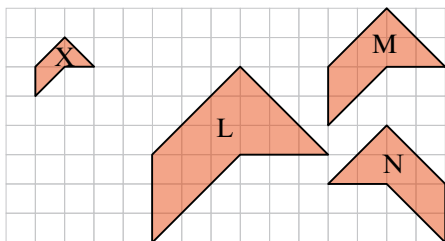Who is correct? Explain how you know.

9 The diagram shows two objects, A and B.

Katya enlarged one of the objects by scale factor 2 with centre of enlargement R.

She drew the image shown.
Which object did she enlarge?

10 The diagram shows an object X and four possible images L, M and N.

a Which shape is the image of X after an enlargement with scale factor 3?

b Which other shape is the image of X after an enlargement? Write down the scale factor.

c Look at the remaining shape.

Explain how you know that it is *not* the image of X after an enlargement.