



Enlargements

To describe an enlargement you need to give the scale factor and the centre of enlargement.

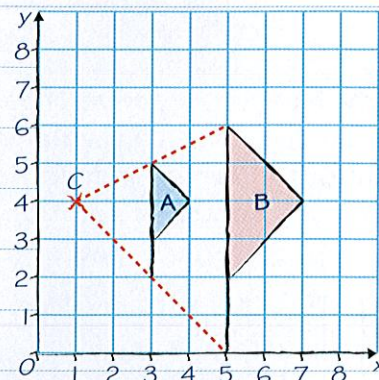
The SCALE FACTOR of an enlargement tells you how much each length is multiplied by.

$$\text{Scale factor} = \frac{\text{enlarged length}}{\text{original length}}$$

Lines drawn through corresponding points on the object (A) and image (B) meet at the CENTRE OF ENLARGEMENT.

When the scale factor is between 0 and 1, image B is SMALLER than object A.

When the scale factor is negative, image B is on the OTHER SIDE of the centre of enlargement.

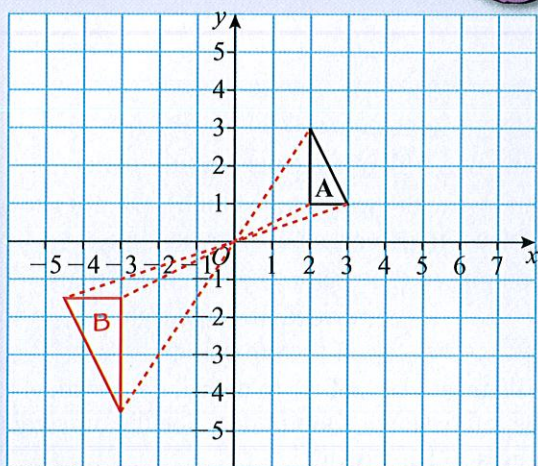


A to B: Each point on B is twice as far from C as the corresponding point on A.

Enlargement with scale factor 2, centre (1, 4).

For enlargements, angles in shapes do not change but lengths of sides do change.

Worked example

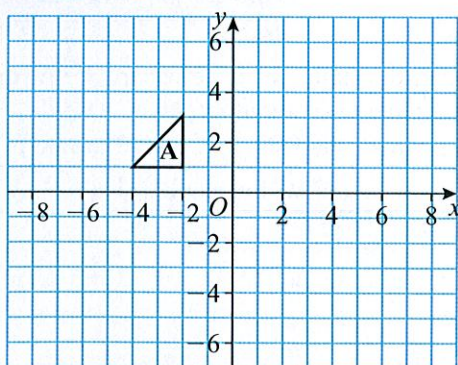


- Enlarge triangle A by scale factor $-1\frac{1}{2}$ with centre of enlargement O.

1. Draw lines from each vertex through the centre of enlargement.
2. The scale factor is negative so the enlargement (B) is on the opposite side of the centre of enlargement and is upside down.
3. You can measure the distance from each point on A to the centre of enlargement. The corresponding point on B is $\frac{1}{2}$ times the distance from the centre of enlargement.

Check it!
 Each length on B should be $\frac{1}{2}$ times the corresponding length on A. ✓
 If you were given this completed diagram, could you describe the transformation? If you're going for an A*, you need to be comfortable with negative fractional scale factors.

Now try this



- Enlarge shape A by a scale factor $\frac{1}{2}$, centre (6, 1). Label the new shape B. (3 marks)
- Enlarge shape A by a scale factor -2 , centre O. Label the new shape C. (3 marks)

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