

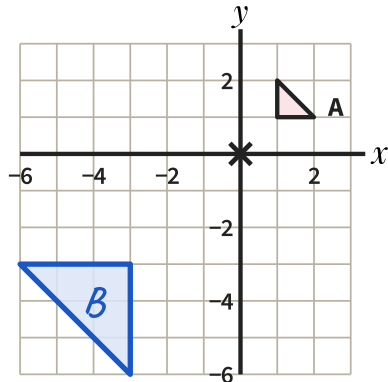
Enlargement: Negative Scale Factors *stretch*

ANSWERS

1



Enlarge shape A by scale factor -3 , centre $(0, 0)$. Label the image B.

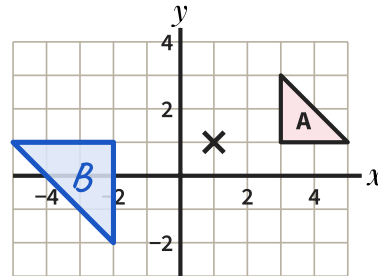


Corners $(-3, -3), (-6, -3), (-3, -6)$

2



Enlarge shape A by scale factor -1.5 , centre $(1, 1)$ (marked $\times$). Label the image B.



Corners $(-2, 1), (-5, 1), (-2, -2)$

3



The point $(6, 5)$ is enlarged by scale factor $-\frac{1}{3}$, centre $(0, 2)$. Find the coordinates of its image.

$$\text{from the centre: } \begin{pmatrix} 6 \\ 3 \end{pmatrix} \times -\frac{1}{3} \rightarrow \begin{pmatrix} -2 \\ -1 \end{pmatrix}$$

$$(0, 2) + \begin{pmatrix} -2 \\ -1 \end{pmatrix} = (-2, 1)$$

Answer $(-2, 1)$

4



A triangle has sides 4 cm, 6 cm and 7 cm, and one angle of 52° . It is enlarged by scale factor -1.5 . Write down the three sides of the image and the size of that angle.

lengths $\times 1.5$

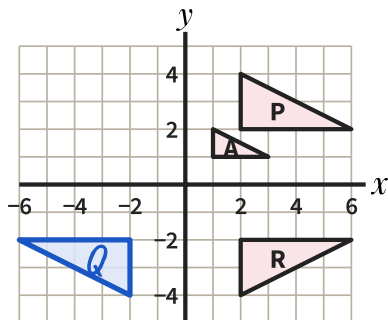
angles do not change

Answer 6 cm, 9 cm, 10.5 cm; 52°

5



Which shape is the image of A after an enlargement, scale factor -2 , centre $(0, 0)$? Why is P wrong?



Answer Q ; P is scale factor 2

6



Lily enlarges the point $(3, 2)$ by scale factor -2 , centre $(1, 0)$. She writes $(-6, -4)$. Explain her mistake and find the correct image.

she used $(0, 0)$ as the centre

$$\text{centre to point } \begin{pmatrix} 2 \\ 2 \end{pmatrix} \times -2 \rightarrow \begin{pmatrix} -4 \\ -4 \end{pmatrix}$$

Answer $(-3, -4)$

7



$(-5, 1)$ is the image of a point P after an enlargement by scale factor -2 , centre $(1, -1)$. Find the coordinates of P.

$$\text{centre to image: } \begin{pmatrix} -6 \\ 2 \end{pmatrix}$$

$$\div -2: \begin{pmatrix} 3 \\ -1 \end{pmatrix}, \text{ so } P = (4, -2)$$

Answer $(4, -2)$

8



Shape A has an area of 5 cm^2 . It is enlarged so that its image has an area of 45 cm^2 and is upside down on the other side of the centre. Find the scale factor and give a reason for its sign.

areas $\times 9$, so lengths $\times 3$

other side of the centre, so negative

Answer -3