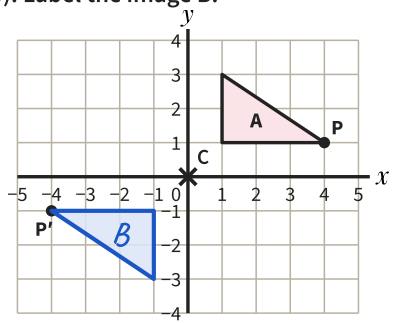
Enlargement: negative scale factors

ANSWERS

1

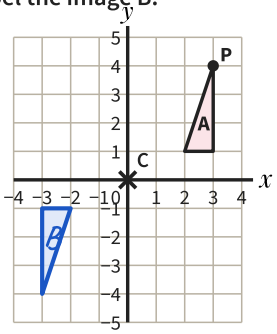
Enlarge shape A by scale factor −1, centre (0, 0). Label the image B.



P	4 right, 1 up
P′	4 left, 1 down
Corners	(−1, −1), (−4, −1), (−1, −3)

2

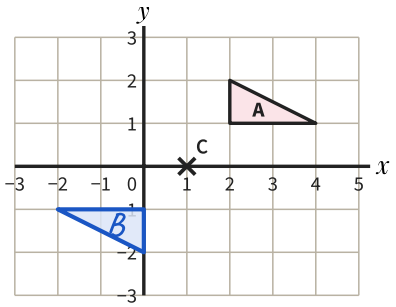
Enlarge shape A by scale factor −1, centre (0, 0). Label the image B.



P	3 right, 4 up
P′	3 left, 4 down
Corners	(−2, −1), (−3, −1), (−3, −4)

3

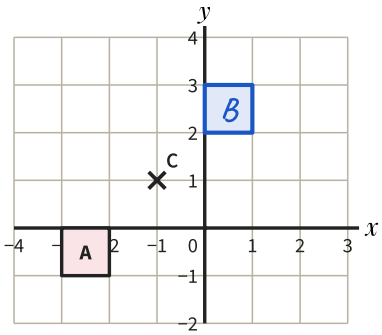
Enlarge shape A by scale factor −1, centre C (1, 0). Label the image B.



Corners (0, −1), (−2, −1), (0, −2)

4

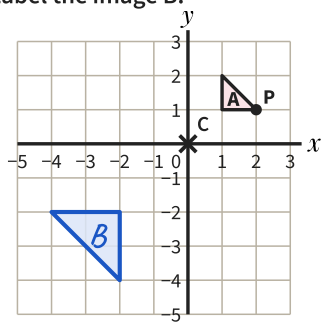
Enlarge shape A by scale factor −1, centre C (−1, 1). Label the image B.



Corners (1, 3), (0, 3), (0, 2), (1, 2)

5 Notice the change!

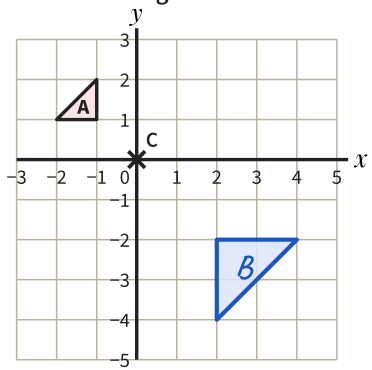
Enlarge shape A by scale factor −2, centre (0, 0). Label the image B.



P	2 right, 1 up
P′	4 left, 2 down
Corners	(−2, −2), (−4, −2), (−2, −4)

6

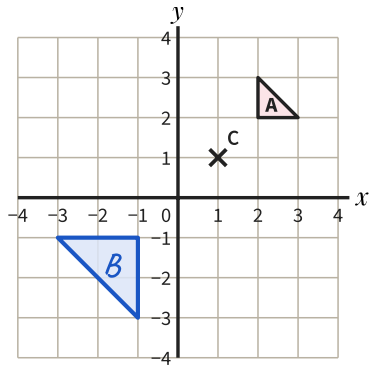
Enlarge shape A by scale factor −2, centre (0, 0). Label the image B.



Corners (4, −2), (2, −2), (2, −4)

7

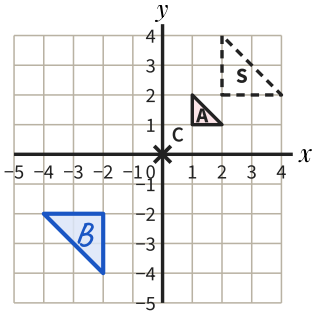
Enlarge shape A by scale factor −2, centre C (1, 1). Label the image B.



Corners (−1, −1), (−3, −1), (−1, −3)

8

Sam enlarges shape A by scale factor −2, centre (0, 0). He draws shape S.
Explain his mistake.



S is scale factor 2: same side

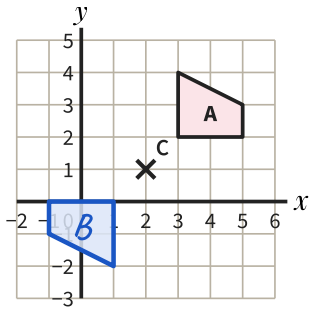
B: the other side, upside down

Enlargement: negative scale factors *further practice*

ANSWERS

9

Enlarge shape A by scale factor −1, centre C (2, 1).



Corners (1, 0), (−1, 0), (−1, −1), (1, −2)

10

P (4, 3) is enlarged by scale factor −2, centre (1, 1). Find the coordinates of P′.

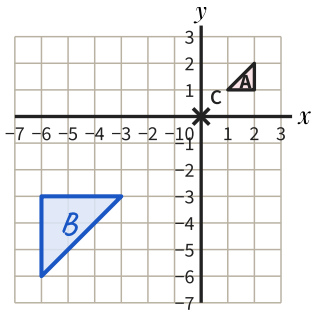
from C: 3 right, 2 up

× −2: 6 left, 4 down

Answer (−5, −3)

11

Enlarge shape A by scale factor −3, centre (0, 0).



Corners (−3, −3), (−6, −3), (−6, −6)

12

A triangle has sides 3 cm, 4 cm and 5 cm. It is enlarged by scale factor −2. Find the perimeter of the image.

sides 6 cm, 8 cm, 10 cm

a length is never negative

Answer 24 cm

13

Shape A is enlarged by scale factor −1, centre (−1, 2). Describe fully the rotation that gives the same image.

a half turn: either direction

Answer Rotation 180°, centre (−1, 2)

14

P′ (−6, −2) is the image of P after an enlargement, scale factor −2, centre (0, 0). Find the coordinates of P.

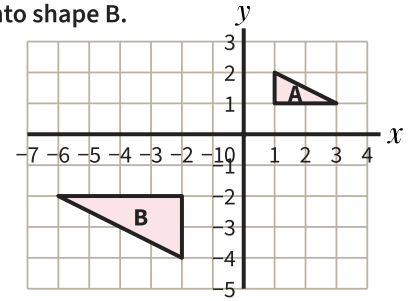
P′ is 6 left, 2 down from (0, 0)

÷ −2: 3 right, 1 up

Answer (3, 1)

15

Describe fully the single transformation that maps shape A onto shape B.



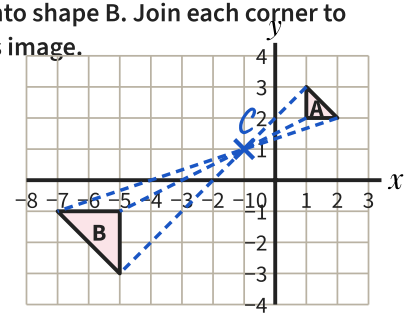
scale factor −2

centre (0, 0)

Answer Enlargement

16

Describe fully the single transformation that maps shape A onto shape B. Join each corner to its image.



scale factor −2

centre (−1, 1)

Answer Enlargement