Enlargement: negative scale factors

Exit ticket ANSWERS Name _____

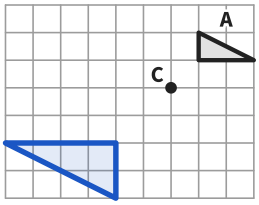
1. P (2, 3) is enlarged by scale factor −1, centre (0, 0). Find the coordinates of P′.

(−2, −3)

2. P (3, 1) is enlarged by scale factor −2, centre (1, 0). Find the coordinates of P′.

(−3, −2)

3. Enlarge shape A by scale factor −2, centre C.



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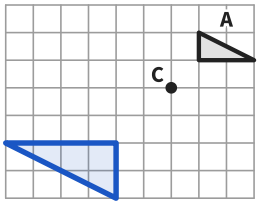

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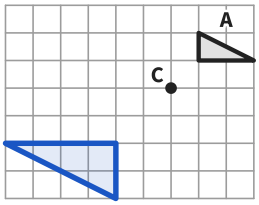

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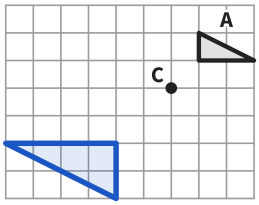

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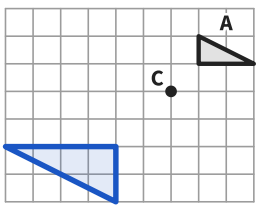

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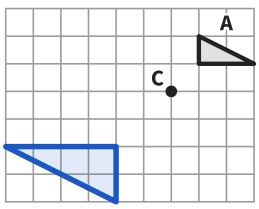


The Maths Habit

Exit ticket Enlargement: negative scale factors

1 **P (2, 3) is enlarged by scale factor −1, centre (0, 0). Find the coordinates of P′.**

(−2, −3)

TESTS Scale factor −1 about (0, 0): every journey from the centre reversed

LOOK FOR *(2, 3)* nothing moved: −1 sends it the other way, 2 left and 3 down

(−2, 3) only the x coordinate changed: that is a reflection, not a half turn

FIX IT

P (4, −1) is enlarged by scale factor −1, centre (0, 0). Find the coordinates of P′. *(−4, 1)*

2 **P (3, 1) is enlarged by scale factor −2, centre (1, 0). Find the coordinates of P′.**

(−3, −2)

TESTS Scale factor −2 with the centre off the origin: count from C

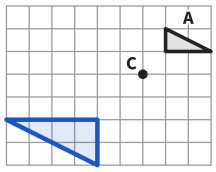
LOOK FOR *(−6, −2)* counted from (0, 0): from C (1, 0), P is 2 right, 1 up

(5, 2) scale factor 2: the minus sends it to the other side of C

FIX IT

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

3 **Enlarge shape A by scale factor −2, centre C.**



on the diagram

TESTS The whole method once: enlarging a shape by −2 about C on a grid

LOOK FOR *the image beside A, the right way up* scale factor 2: the image goes through C to the other side, upside down

the image the same size as A scale factor −1: every length is 2 times as long

FIX IT

Triangle A has corners (1, 1), (3, 1) and (1, 2). Enlarge it by scale factor −2, centre (0, 0). Give the corners of the image. *(−2, −2), (−6, −2), (−2, −4)*