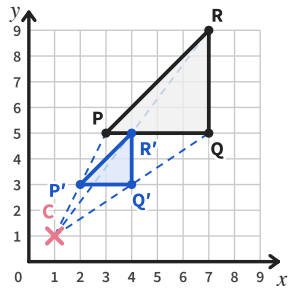
Enlargement by a fractional scale factor

ANSWERS

1

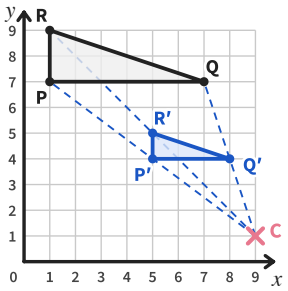
Enlarge the shape by scale factor $\frac{1}{2}$, centre C (1, 1). The first row is done for you.



Vertex	Journey from C	Journey × $\frac{1}{2}$	Image vertex
P (3, 5)	right 2, up 4	right 1, up 2	P′ (2, 3)
Q (7, 5)	right 6, up 4	*right 3, up 2*	*Q′ (4, 3)*
R (7, 9)	right 6, up 8	*right 3, up 4*	*R′ (4, 5)*

2

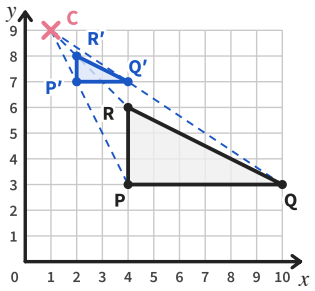
Enlarge the shape by scale factor $\frac{1}{2}$, centre C (9, 1).



Vertex	Journey from C	Journey × $\frac{1}{2}$	Image vertex
P (1, 7)	left 8, up 6	*left 4, up 3*	*P′ (5, 4)*
Q (7, 7)	left 2, up 6	*left 1, up 3*	*Q′ (8, 4)*
R (1, 9)	left 8, up 8	*left 4, up 4*	*R′ (5, 5)*

3

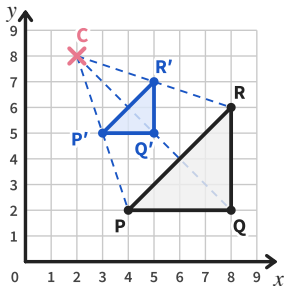
Enlarge the shape by scale factor $\frac{1}{3}$, centre C (1, 9).



Vertex	Journey from C	Journey × $\frac{1}{3}$	Image vertex
P (4, 3)	right 3, down 6	*right 1, down 2*	*P′ (2, 7)*
Q (10, 3)	right 9, down 6	*right 3, down 2*	*Q′ (4, 7)*
R (4, 6)	right 3, down 3	*right 1, down 1*	*R′ (2, 8)*

4

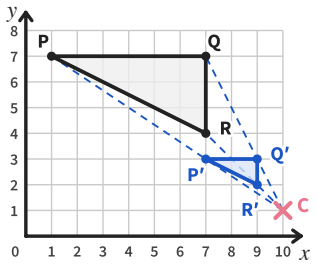
Enlarge the shape by scale factor $\frac{1}{2}$, centre C (2, 8).



Vertex	Journey from C	Journey × $\frac{1}{2}$	Image vertex
P (4, 2)	*right 2, down 6*	*right 1, down 3*	*P′ (3, 5)*
Q (8, 2)	*right 6, down 6*	*right 3, down 3*	*Q′ (5, 5)*
R (8, 6)	*right 6, down 2*	*right 3, down 1*	*R′ (5, 7)*

5

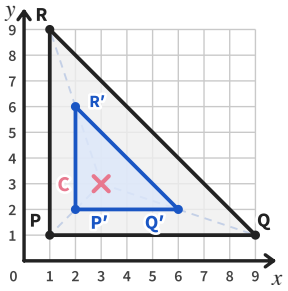
Enlarge the shape by scale factor $\frac{1}{3}$, centre C (10, 1).



Vertex	Journey from C	Journey × $\frac{1}{3}$	Image vertex
P (1, 7)	*left 9, up 6*	*left 3, up 2*	*P′ (7, 3)*
Q (7, 7)	*left 3, up 6*	*left 1, up 2*	*Q′ (9, 3)*
R (7, 4)	*left 3, up 3*	*left 1, up 1*	*R′ (9, 2)*

6

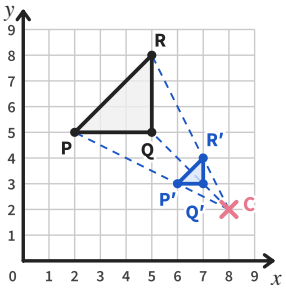
Enlarge the shape by scale factor $\frac{1}{2}$, centre C (3, 3). The centre is inside the shape.



Vertex	Journey from C	Journey × $\frac{1}{2}$	Image vertex
P (1, 1)	*left 2, down 2*	*left 1, down 1*	*P′ (2, 2)*
Q (9, 1)	*right 6, down 2*	*right 3, down 1*	*Q′ (6, 2)*
R (1, 9)	*left 2, up 6*	*left 1, up 3*	*R′ (2, 6)*

7

Enlarge the shape by scale factor $\frac{1}{3}$, centre C (8, 2). No table this time.



P left 6, up 3 → left 2, up 1

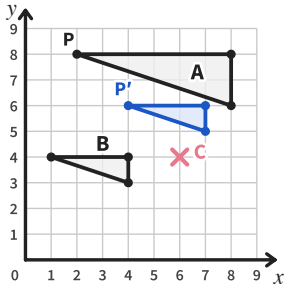
P′ *(6, 3)*

8

Enlarge A by scale factor $\frac{1}{2}$, centre C (6, 4).

Sam halved the coordinates and drew B.

What did he do wrong?



he should halve the journey from C

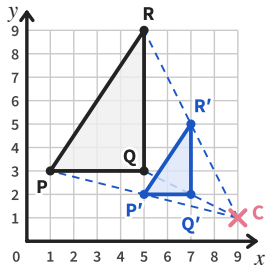
P′ should be *(4, 6)*

Enlargement by a fractional scale factor *further practice*

ANSWERS

9

Enlarge the triangle by scale factor $\frac{1}{2}$, centre C (9, 1).



P: left 8, up 2, halved: left 4, up 1

P′ *(5, 2)*

10

The point (9, 5) is enlarged by scale factor $\frac{1}{2}$, centre (1, 1). Write down the coordinates of its image.

journey right 8, up 4

halved: right 4, up 2

Answer *(5, 3)*

11

A rectangle is 12 squares long and 6 squares wide. It is enlarged by scale factor $\frac{1}{3}$. How long and how wide is the image?

every side a third as long

12 ÷ 3 and 6 ÷ 3

Answer *4 by 2 squares*

12

Nina says that a scale factor of $\frac{1}{2}$ can't be an enlargement, because the shape gets smaller. Is she right? Explain.

it is still called an enlargement

every side is half as long

Answer *No*

13

A designer shrinks a logo on a grid by scale factor $\frac{1}{2}$, centre (2, 3).
One corner of the logo is at (10, 7).
Where does that corner go?

journey right 8, up 4

halved: right 4, up 2

Answer *(6, 5)*

14

A triangle has sides of 6 cm, 8 cm and 10 cm. It is enlarged by scale factor $\frac{1}{2}$.
What is the perimeter of the image?

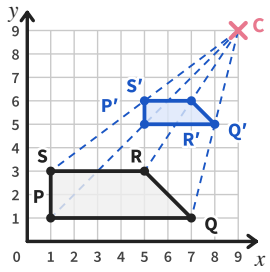
sides 3 cm, 4 cm and 5 cm

3 + 4 + 5 = 12

Answer *12 cm*

15

Enlarge the trapezium by scale factor $\frac{1}{2}$, centre C (9, 9).



corners (5, 5), (8, 5), (7, 6), (5, 6)

P′ *(5, 5)*

16

Ella enlarges a shape by scale factor $\frac{1}{2}$, centre C. Then she enlarges her image by scale factor 2, centre C.
What does she get? Explain.

each journey is halved

then doubled back

Answer *The shape she started with*