

Discussion Problems

Step 4: Reflections

National Curriculum Objectives:

Mathematics Year 6: (6P3) [Describe positions on the full coordinate grid \(all four quadrants\)](#)

Mathematics Year 6: (6P2) [Draw and translate simple shapes on the coordinate plane, and reflect them in the axes](#)

About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

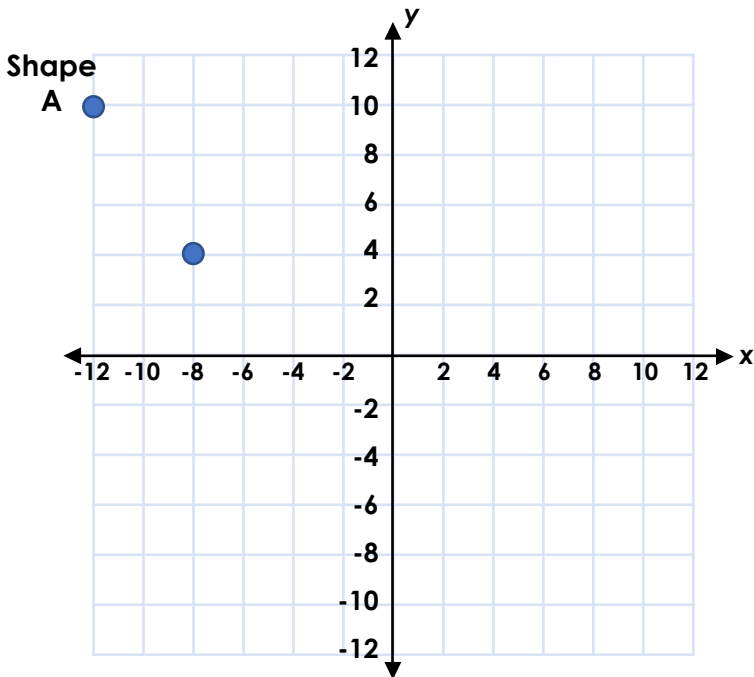
We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 6 Position and Direction](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Reflections

1. An irregular hexagon has been translated through the y-axis and then reflected through the x-axis, but some coordinates are missing. Plot both the original shape and its reflection using the coordinates given.

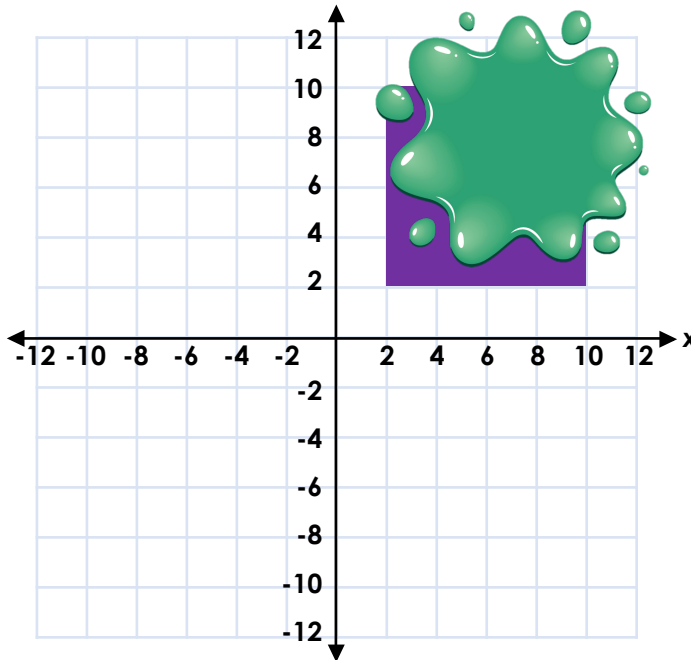


Start shape A	End shape B
$(-12, 10)$	$(2, -10)$
	$(2, -4)$
$(-8, 4)$	
	$(10, -6)$

Explore the possible start and end irregular hexagons.

DP

2. Explore the possible reflection for the irregular octagon in all 4 quadrants.

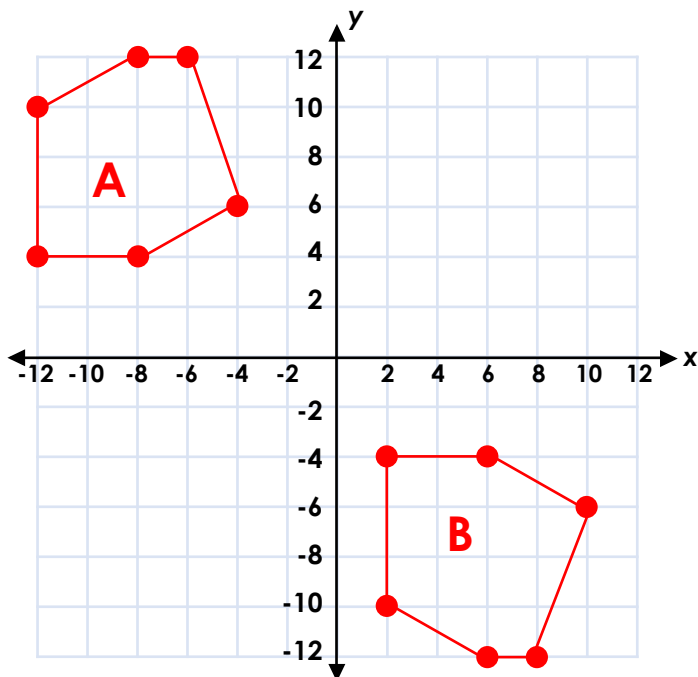


Write the possible coordinates of the reflected shapes.

DP

Reflections

1. An irregular hexagon has been translated through the y-axis and then reflected through the x-axis, but some coordinates are missing. Plot both the original shape and its reflection using the coordinates given.



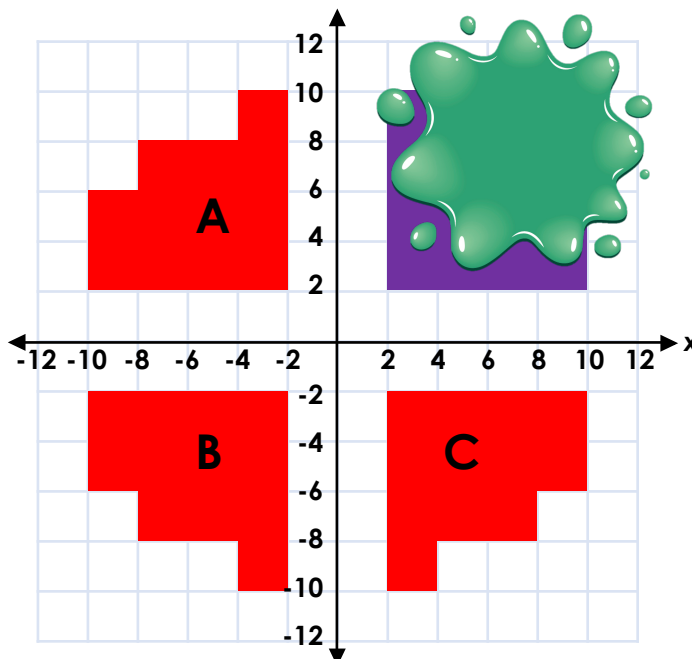
Start shape A	End shape B
$(-12, 10)$	$(2, -10)$
$(-12, 4)$	$(2, -4)$
$(-8, 4)$	$(6, -4)$
$(-4, 6)$	$(10, -6)$
$(-6, 12)$	$(8, -12)$
$(-8, 12)$	$(6, -12)$

Explore the possible start and end irregular hexagons.

Various answers for the last two coordinates in each shape, for example: see above.

DP

2. Explore the possible reflection for the irregular octagon in all 4 quadrants.



Write the possible coordinates of the reflected shapes. Various answers, for example:

A: $(-10, 6)$, $(-8, 6)$, $(-8, 8)$, $(-4, 8)$, $(-4, 10)$, $(-2, 10)$, $(-2, 2)$, $(-10, 2)$

B: $(-10, -2)$, $(-2, -2)$, $(-2, -10)$, $(-4, -10)$, $(-4, -8)$, $(-8, -8)$, $(-8, -6)$, $(-10, -6)$

C: $(2, -2)$, $(10, -2)$, $(10, -6)$, $(8, -6)$, $(8, -8)$, $(4, -8)$, $(4, -10)$, $(2, -10)$

DP