

Discussion Problems

Step 1: The First Quadrant

National Curriculum Objectives:

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

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.

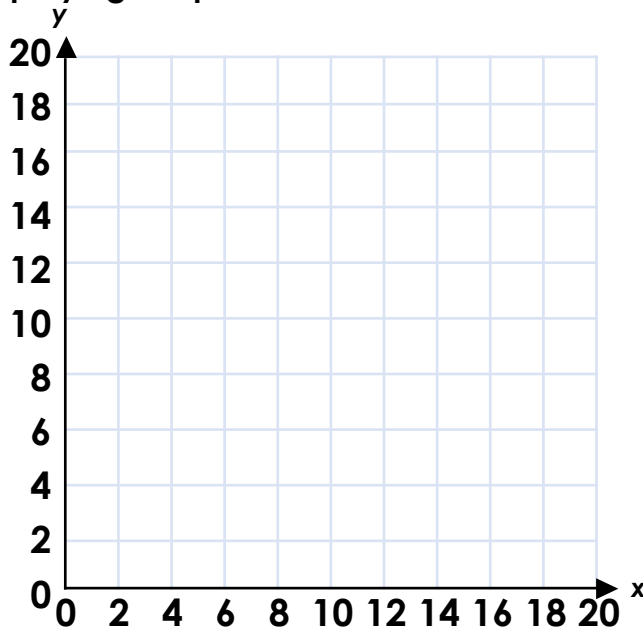
We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

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

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

The First Quadrant

1. Rayyan is playing Shape Sinkers with his friend Ihsan.



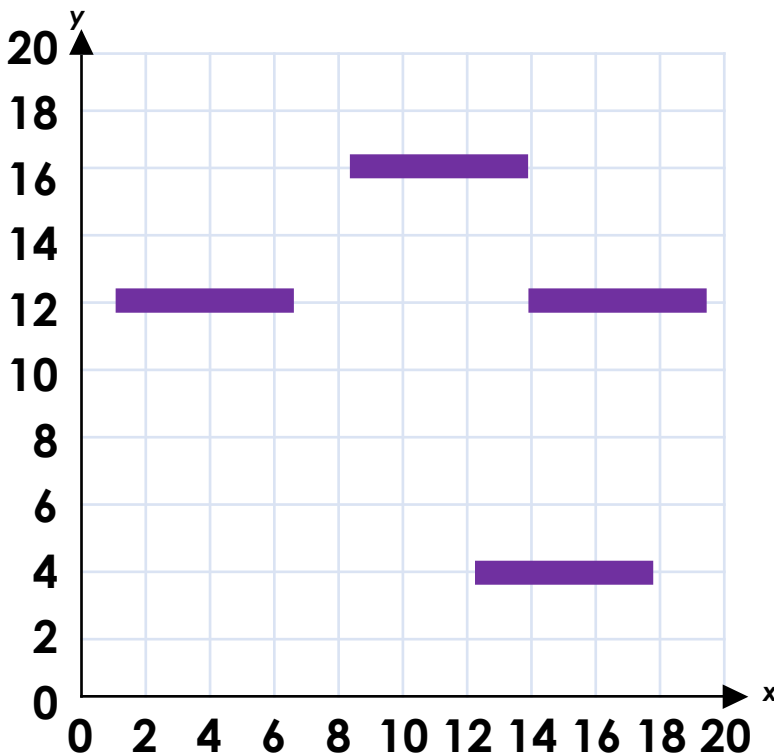
Hits
(4, 8)
(4, 16)
(6, 3)
(6, 19)
(8, 12)
(12, 14)
(13, 3)
(13, 19)
(16, 10)
(16, 18)
(20, 14)

Two shapes sink. One shape has at least one line of symmetry and one shape has no lines of symmetry. The shapes do not overlap.

Plot the coordinates to create two shapes that could be on Rayyan's Shape Sinkers grid.

DP

2. Plot the three different paths from the start points to the exit points.



Paths

stars	circles	squares
(2, 0)	(10, 0)	(18, 0)
(,)	(,)	(,)
(,)	(,)	(,)
(8, 12)	(11, 12)	(14, 10)
(,)	(,)	(,)
(0, 18)	(8, 20)	(18, 20)

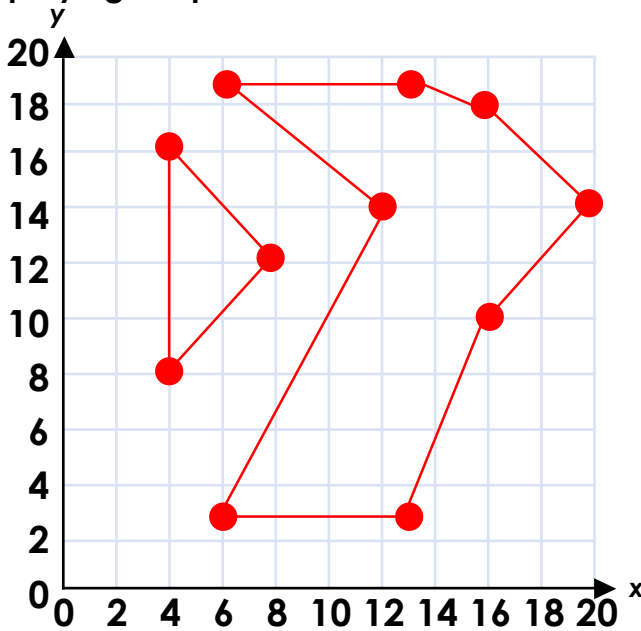
Rules

- The paths cannot cross.
- You cannot go through any barriers.
- Each path must be six coordinates long.
- You cannot use the same coordinate on the x-axis more than once per path.

DP

The First Quadrant

1. Rayyan is playing Shape Sinkers with his friend Ihsan. **Various answers, for example:**



Hits
(4, 8)
(4, 16)
(6, 3)
(6, 19)
(8, 12)
(8, 19)
(12, 14)
(13, 3)
(13, 19)
(16, 10)
(16, 18)
(20, 14)

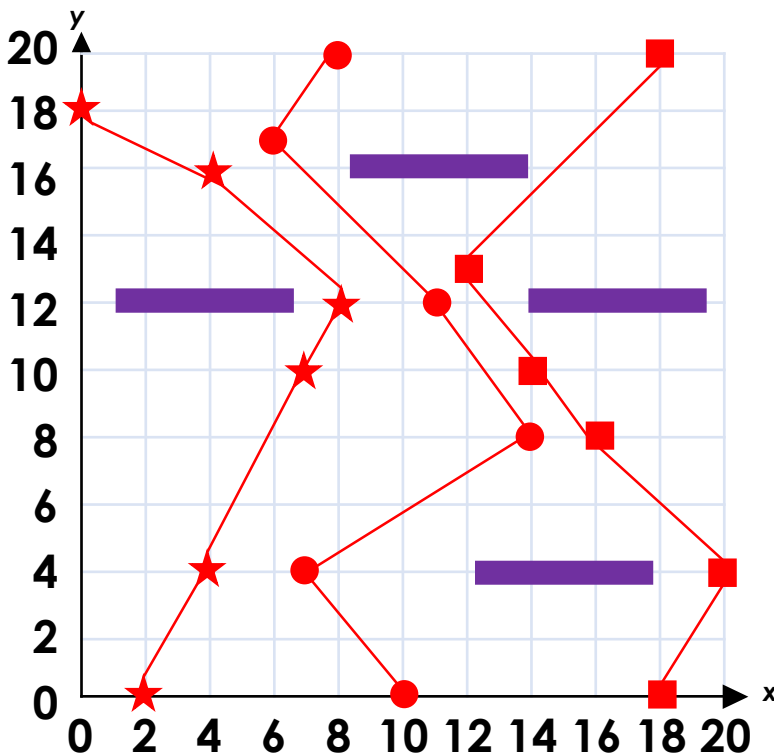
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DP

2. Plot the three different paths from the start points to the exit points.

Various answers, for example:



Paths

stars	circles	squares
(2, 0)	(10, 0)	(18, 0)
(4, 4)	(7, 4)	(20, 4)
(7, 10)	(14, 8)	(16, 8)
(8, 12)	(11, 12)	(14, 10)
(4, 16)	(6, 17)	(12, 13)
(0, 18)	(8, 20)	(18, 20)

Rules

- The paths cannot cross.
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DP