



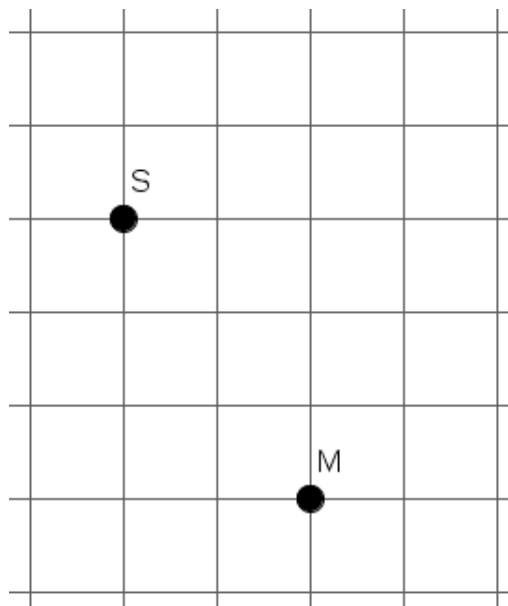
# Choice of routes in a grid

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The figure shows the points S and M which are both placed at a crossing point in a 5 x 6 grid of squares. This grid has seven horizontal and six vertical lines, but it can be expanded by adding more lines.

In this investigation you will explore how many different routes you can choose from a starting point S to an end point M, by following these rules:

- i. You can move along the horizontal and vertical line segments that S and M are located on, and on all line segments between them.
- ii. You can move along all vertical line segments.
- iii. you can not cover the same path twice within one route.
- iv. When you have left one of the horizontal line segments you can not go back to it.



**NB.** Pay careful attention to the assessment criteria for the task before you start working on it.

## A SUBJECT REPORT

You should make a joint subject report which offers a thorough explanation of how the class has worked with points 1-4 and what results you have reached.

- 1) How many possible routes are there from S to M in the above figure?
- 2) Choose different start and end points and find out how many possible routes there are between them.
- 3) Make a rule which shows how many possible routes there are between two points on an infinitely large grid.
- 4) Find two ways of describing a route between two points.

## B EXHIBITION

Make an exhibition which shows how movement in a grid can be applied.

## C PRESENTATION

Make a presentation where the audience will get an insight into the inquiry based work and the exhibition, in such a way that it can awaken the interest of other young people.