# Discussing distance

Teacher notes

## Why use this resource?

This resource initially asks students to decide what two unlabelled graphs represent. It aims to raise awareness of the similarities and differences between distance and displacement. The final section Thinking about journeys offers students a chance to understand why most kinematics problems they meet initially will be one-dimensional. It introduces the idea that, while one-dimensional journeys can be easily graphed on the Cartesian plane, journeys in two dimensions may be more problematic.

## Possible approach

Mini-white boards could be useful so you can ask students to draw some of the graphs they suggest, helping them to decide for themselves whether or not their answers are correct.

The final section tends to produce lots of talking points. For situation one, there is the opportunity to discuss the fact we can measure displacement from different points and therefore produce different graphs. In situation two, students are likely to believe that they can graph the displacement meaningfully. If their graphs show different gradients when they have turned the corner, you may wish to contrast the constant speed in the initial problem with the varying speed suggested by their graph. Also by asking them in which direction their graph suggests they are walking, you can lead them to the realisation that the graph does not give information about the direction of travel when you are dealing with two dimensions.

The ideas from both sections of this resource are developed in Speed vs velocity. This draws on the original graphs in this problem and encourages students to think more about what the gradient of a graph and area under a graph might represent.