3.15 Relative positions of lines

Checklist

What you should know

By the end of this subtopic you should be able to:

- use the vector equations of two straight lines to determine whether the lines are parallel, coincident, intersecting or skew
- recall that if two straight lines are parallel:
  - they have the same direction vector or the direction vectors are scalar multiples of the same vector
  - they have no points of intersection
- recall that if two straight lines intersect, then they will have one point in common; if two lines in 2D space are non-parallel, then they will always intersect at one point
- recall that if two lines have infinitely many points of intersection, then they are coincident
- recall that if two lines in 3D are non-parallel and have no points of intersection, then they are skew
- find the coordinates of the point of intersection of two lines that are not parallel, coincident or skew.