



## Maths-it Podcast AS-02

AS Core Revision

### *Linear equations*

## Topics

The equation of a straight line – Distance between two points – Midpoints  
Parallel and perpendicular lines – Linear inequalities

## Questions

- The coordinates of point A are  $(-1, 2)$ , point B has coordinates  $(5, 9)$ .
  - Find the midpoint of AB. (2)
  - Find the exact distance from A to B. (2)
  - Find the equation of the line passing through A and B in the form  $px+qy=r$ , where  $p, q$  and  $r$  are integers. (4)
  - A line passes through A, perpendicular to the line through A and B. Find its equation. (3)

**(Total 11 marks)**
- The line with equation  $2x+3y=k$  passes through point A with coordinates  $(9, -1)$  and point B with coordinates  $(5, a)$ 
  - Find  $k$ . (2)
  - Find  $a$ . (2)
  - Another line has equation  $y=2x+5$ . Show that the two lines intersect on the  $y$ -axis. (3)

**(Total 7 marks)**
- The points A, B and C have coordinates  $(5, 0)$ ,  $(1, 1)$  and  $(-2, -5)$  respectively.
  - Find the gradient of the line passing through points A and B. (2)
    - Hence or otherwise find the equation of this line. (2)

A line perpendicular to AB passes through point C and intersects AB at point D.

  - Show that the equation of this line is  $y=4x+3$ . (3)
  - Hence or otherwise find the coordinates of point D. (4)

**(Total 11 marks)**
- A line has the equation  $3x+4y=24$ , find the equation of the line parallel to this, passing through point  $(5, 6)$  (Total 3 marks)
- Solve  $2x-5>3-5(x+3)$  (Total 3 marks)