My mathematical journey

What do I need to remember from before?

Solving linear equations (A4)

Rearranging formulae (A5)

$y = mx + c$ (A6)

Linear inequalities (A8)

What will I learn about in this unit?

Solving problems with graphs

Finding lines parallel and perpendicular to others

Solving simultaneous equations

Plotting inequalities in two dimensions

Where does this lead?

Quadratic graphs (A12)

Non-linear simultaneous equations, non-linear inequalities (A14)

Tangents and normal (A15)

Gradient of a curve (A16)

Using graphs to represent complex problems (A Level Maths)

Key words and symbols: what I need to say and write accurately

Word	Explanation
y-intercept	where a graph crosses the y-axis
x-intercept or **root**	where a graph crosses the x-axis
satisfy	a number satisfies an equation when it solves the equation
gradient	the steepness of a line
parallel	describing two lines that have the same gradient, so will never intersect
perpendicular	describing two lines that meet at right angles to each other
to intersect	to cross – we say two lines intersect
simultaneously	at the same time
$\parallel$	*is parallel to*
$\perp$	*is perpendicular to*
region	an area on a graph
boundary	a line that marks the edge of a region

Fingertip facts: what I need to learn by heart

If a point (x, y) lies on a line, its coordinates can be substituted for y and x in the equation of the line and they will satisfy the equation.

The gradient of a line is the amount up/down it moves for every one unit right. We can work this out by calculating the ratio $\frac{\textbf{vertical}}{\textbf{horizontal}}$ between two points on the line.

The gradients of parallel lines are the same.

The gradients of perpendicular lines are the negative reciprocal of each other: $+\frac{a}{b} \perp -\frac{b}{a}$

On the y-axis, $x = 0$. On the x-axis, $y = 0$.

When we solve simultaneous equations, we find the point of intersection of graphs of the two equations.