

Ma 2: number and algebra

Key Stage 4 mathematics: higher – an extract

Equations

- set up simple equations [for example, find the angle a in a triangle with angles a , $a + 10$, $a + 20$]; solve simple equations [for example, $5x = 7$; $11 - 4x = 2$; $3(2x + 1) = 8$; $2(1 - x) = 6(2 + x)$; $4x^2 = 49$; $3 = \frac{12}{x}$] by using inverse operations or by transforming both sides in the same way

Linear equations

- solve linear equations in one unknown, with integer or fractional coefficients, in which the unknown appears on either side or on both sides of the equation; solve linear equations that require prior simplification of brackets, including those that have negative signs occurring anywhere in the equation, and those with a negative solution

Simultaneous linear equations

- find the exact solution of two simultaneous equations in two unknowns by eliminating a variable, and interpret the equations as lines and their common solution as the point of intersection
- solve simple linear inequalities in one variable, and represent the solution set on a number line; solve several linear inequalities in two variables and find the solution set

Quadratic equations

- solve quadratic equations by factorisation, completing the square and using the quadratic formula

Simultaneous linear and quadratic equations

- solve exactly, by elimination of an unknown, two simultaneous equations in two unknowns, one of which is linear in each unknown, and the other is linear in one unknown and quadratic in the other [for example, solve the simultaneous equations $y = 11x - 2$ and $y = 5x^2$], or where the second is of the form $x^2 + y^2 = r^2$