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| Unit 5: Further equations and inequalities | | **Year 9 Road Map** | | | |
| In this unit you will learn about number. The aims are as follows:  **LG1**: Knowledge  **LG2**: Application  **LG3**: Skills | | | | | |
| **Themes** | | **Learning Goals/Outcomes/Content** |  |  |  |
| 5a) Further equations | S | Select an expression/equation/formula/identity from a list; |  |  |  |
| S | Write expressions and set up simple equations; |  |  |  |
| S | Use function machines; |  |  |  |
| S | Solve simple equations; |  |  |  |
| SC | Solve linear equations, with integer coefficients, in which the unknown appears on either side or on both sides of the equation; |  |  |  |
| SC | Solve linear equations which contain brackets, including those that have negative signs occurring anywhere in the equation, and those with a negative solution; |  |  |  |
| SC | Solve linear equations in one unknown, with integer or fractional coefficients; |  |  |  |
| SC | Substitute into a formula, and solve the resulting equation; |  |  |  |
| SC | Find an approximate solution to a linear equation using a graph; |  |  |  |
| SCE | Solve angle or perimeter problems using algebra. |  |  |  |
| SCE | Write an equation to solve a word problem. |  |  |  |
| E | Factorise quadratic expressions in the form *ax*2 + *bx* + *c*; |  |  |  |
| CE | Solve quadratic equations by factorisation and completing the square; |  |  |  |
| E | Solve quadratic equations that need rearranging; |  |  |  |
| E | Set up and solve quadratic equations; |  |  |  |
| CE | Solve quadratic equations by using the quadratic formula; |  |  |  |
| CE | Find the exact solutions of two simultaneous equations in two unknowns; |  |  |  |
| CE | Use elimination or substitution to solve simultaneous equations; |  |  |  |
| CE | Solve exactly, by elimination of an unknown, two simultaneous equations in two unknowns: |  |  |  |
| E | linear / linear, including where both need multiplying; linear / quadratic; linear / *x*2 + *y*2 = *r*2; |  |  |  |
| E | Set up and solve a pair of simultaneous equations in two variables for each of the above scenarios, including to represent a situation; |  |  |  |
| CE | Interpret the solution in the context of the problem; |  |  |  |

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| 5b) Inequalities | SC | Use the correct notation to show inclusive and exclusive inequalities; |  |  |  |
| SC | Show inequalities on number lines; |  |  |  |
| SC | Construct inequalities to represent a set shown on a number line; |  |  |  |
| SCE | Write down whole number values that satisfy an inequality; |  |  |  |
| CE | Solve simple linear inequalities in one variable, and represent the solution set on a number line; |  |  |  |
| CE | Solve an inequality such as –3 < 2*x* + 1 <7 and show the solution set on a number line; |  |  |  |
| CE | Solve two inequalities in *x*, find the solution sets and compare them to see which value of *x* satisfies both; |  |  |  |
| E | Solve two linear inequalities in *x*, find the solution sets and compare them to see which value of *x* satisfies both solve linear inequalities in two variables algebraically; |  |  |  |