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| **H Unit 8: Review setting up, rearranging, and solving equations; Sequences** | | **Year 10 Road Map** | | | | |
| In this unit you will learn about algebra. The aims are as follows:  **LG1**: Knowledge **LG2**: Application **LG3**: Skills  Assessment Grades: | | | | | | |
|  | **Learning Goals/Outcomes/Content** | | Video clips | R A G |  |  |
| **8a Review setting up, rearranging and solving equations** | | | | | | |
| 1 | Set up simple equations from word problems and derive simple formulae; | | 137 |  |  |  |
| 2 | Understand the ≠ symbol (not equal), e.g. 6*x* + 4 ≠ 3(*x* + 2), and introduce identity ≡ sign; | | 137 |  |  |  |
| 3 | Solve linear equations, with integer coefficients, in which the unknown appears on either side or on both sides of the equation; | | 135a |  |  |  |
| 4 | Solve linear equations which contain brackets, including those with negative signs occurring anywhere in the equation, and those with a negative solution; | | 135a |  |  |  |
| 5 | Solve linear equations in one unknown, with integer or fractional coefficients: | | 135a |  |  |  |
| 6 | Set up and solve linear equations to solve a problem; | | 137 |  |  |  |
| 7 | Derive a formula and set up simple equations from word problems, then solve these equations, interpreting the solution in the context of the problem; | | 137 |  |  |  |
| 8 | Substitute positive and negative numbers into a formula, solve the resulting equation including brackets, powers or standard form; | | 95 |  |  |  |
| 9 | Use and substitute formulae from mathematics and other subjects, including the kinematics formulae *v* = *u* + *at*, *v*2 – *u*2 = 2*as*, and *s* = *ut* +  *at*2; | | 95 |  |  |  |
| 10 | Change the subject of a simple formula, i.e. linear one-step, such as *x* = 4*y*; | | 136 |  |  |  |
| 11 | Change the subject of a formula, including cases where the subject is on both sides of the original formula, or involving fractions and small powers of the subject; | | 190 |  |  |  |
| 12 | Simple proofs and use of ≡ in “show that” style questions; know the difference between an equation and an identity; | | 193 |  |  |  |
| 13 | Use iteration to find approximate solutions to equations, for simple equations in the first instance, then quadratic and cubic equations. | | 180 |  |  |  |
| **8b Review of sequences** | | | | | | |
| 14 | Recognise simple sequences including at the most basic level odd, even, triangular, square and cube numbers and Fibonacci-type sequences; | | 104, 141 |  |  |  |
| 15 | Generate sequences of numbers, squared integers and sequences derived from diagrams; | | 37 |  |  |  |
| 16 | Describe in words a term-to-term sequence and identify which terms cannot be in a sequence; | | 103 |  |  |  |
| 17 | Generate specific terms in a sequence using the position-to-term rule and term-to-term rule; | | 102 |  |  |  |
| 18 | Find and use (to generate terms) the *n*th term of an arithmetic sequence; | | 102, 103 |  |  |  |
| 19 | Use the *n*th term of an arithmetic sequence to decide if a given number is a term in the sequence, or find the first term above or below a given number; | | 102, 103 |  |  |  |
| 20 | Identify which terms cannot be in a sequence by finding the *n*th term; | | 102 |  |  |  |
| 21 | Continue a quadratic sequence and use the *n*th term to generate terms; | | 102 |  |  |  |
| 22 | Find the *n*th term of quadratic sequences; | | 213 |  |  |  |
| 23 | Distinguish between arithmetic and geometric sequences; | | 213 |  |  |  |
| 24 | Use finite/infinite and ascending/descending to describe sequences; | |  |  |  |  |
| 25 | Recognise and use simple geometric progressions (*rn* where *n* is an integer, and *r* is a rational number > 0 or a surd); | | 163 |  |  |  |
| 26 | Continue geometric progression and find term to term rule, including negative, fraction and decimal terms; | | 163 |  |  |  |
| 27 | Solve problems involving sequences from real life situations. | | 37 |  |  |  |