# S4 COURSE PLAN

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| **TERM 1 - August to October** | Quadratic Equations | Working with quadratic equations: factorised; graphically; quadratic formula; discriminant; roots | Completing the square in a quadratic expression with unitary $x^2$ coefficient |
| | | | Solve a quadratic equation by factorising into 2 brackets to find two values for x |
| | | | Quadratic formula |
| | Trigonometry | Sine & Cosine Rules | Sine rule for side or angle |
| | | | Cosine rule for side |
| | | | Cosine rule for angle |
| | | | To find a distance or direction - including bearings |
| | | Area of a triangle | Area = ½absinC |
| | Surds and Indices | Surds | Simplification of surds |
| | | | Rationalising denominators |

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| **TERM 2 - October to December** | Surds and Indices | Simplifying expressions using the laws of indices | Multiplication and division using positive and negative indices including fractions |
| | | | Calculations using scientific notation |
| | | | $(a^m)^n = a^{mn}$ |
| | Equations | Working with simultaneous equations | Revise constructing a simple equation from text |
| | | | Construct from text |
| | | | Graphical solution |
| | | | Algebraic solution |
| | Algebraic Fractions | Algebraic Fractions | $a/b * c/d$ where $a, b, c, d$ can be simple constants, variables or expressions. * can be add, subtract, multiply or divide. |
| | | | $a/b$ where $a, b$ are of the form $(x+p)^n$ or $(x+p)(x+q)$ |

| TERM 3 - January to March | Quadratic Equations | Quadratic Functions | Discriminant |
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| | | | Roots |
| | | | Graphically |
| | | | Recognise and determine the equation of a quadratic function from its graph - Equations of the form $y = kx^2$ and $y = (x+p)^2 + q$ |
| | | | Sketching a quadratic function - Equations of the form $y = (x-m)(x-n)$ and $y=(x+p)^2+q$ |
| | | | Identify nature, coordinates of turning point and the equation of the axis of symmetry of a quadratic of the form $y=(x+p)^2+q$ where $k$=1 or -1 |
| | Trigonometry - Graphs & Functions | Trigonometric Graphs and Functions | Basic graphs |
| | | | Amplitude |
| | | | Period |
| | | | Vertical translation |
| | | | Multiple angle |
| | | | Phase angle |
| | | Working with trigonometric relationships in degrees - sin/cos/tan of angles 0-360, period, related angles, solve basic equations, identities | Sine, cosine and tangent of angles 0°– 360° (i.e. exact values) |
| | | | Related angles |
| | | Solving Trigonometric Equations | Solve basic equations |
| | | Trigonometric Identities | Identities:  $\sin^2 x + \cos^2 x = 1$ ;  $\tan x = \sin x/\cos x$ |

# S4 COURSE PLAN

| TERM 4 - April to May | REVISION FOR SQA EXAMS & Preparation for Higher |
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| | SQA EXAMS |