**Year 13 Mathematics – Key vocabulary list**

Appendix 1: Term 1

**Unit P2-5: Radians**

| | | | |
|---|---|---|---|
| Angle $\theta$ | Degrees | Radian | Small angle approximation |
| Arc | Diameter | Radius $r$ | Trigonometric equation |
| Area of any triangle | Isosceles | Sector | |
| Chord | Perimeter | Segment | |

**Unit P2-6 Trigonometric functions**

| | | | |
|---|---|---|---|
| arccos$x$ | Cotangent $\cot x$ | Period | Tangent |
| arcsin$x$ | Domain | Range | Undefined |
| arctan$x$ | Exact value | Reciprocal | Validity |
| Asymptote | Identity | Secant $\sec x$ | |
| Cosecant $\operatorname{cosec} x$ | Inverse function | Sine | |
| Cosine | Inverse trigonometric function | Symmetry | |

**Unit P2-7: Trigonometry and modelling**

| | | | |
|---|---|---|---|
| Addition formulae | Double-angle formulae | Minimum | $R\cos(ax \pm b)$ |
| Amplitude | Exact value | Phase shift/phase angle | $R\sin(ax \pm b)$ |
| Compound-angle formulae | Maximum | Prove | |

**Unit P2-8: Parametric equations**

| | | | |
|---|---|---|---|
| Cartesian form | Parameter | Range | $x$-intercept |
| Domain | Parametric curve | Sketch | $y$-intercept |
| Eliminate the parameter | Parametric equation | Substitution | |
| Equate | Point of intersection | Trigonometric identity | |

**Unit P2-12 Vectors:**

| | | | |
|---|---|---|---|
| Acceleration | Distance | Modulus | Scalar multiple |
| Cartesian coordinates | Force | Origin O | Unit vector |
| Collinear | Intersection | Parameter | Vector |
| Coplanar vectors | Line segment | Position vector | $ijk$ notation |
| Displacement | Magnitude | Resultant force | |

**Unit P2-10: Numerical methods**

| | | | |
|---|---|---|---|
| Approximation | Diverge | Iterative formula | Solution |
| Asymptote | First approximation | Iterative method | Staircase diagram |
| Cobweb diagram | Intersection | Newton-Raphson method | Validity |
| Continuous | Interval [a,b], $a \leq x \leq b$ | Root | Verify |
| Converge | Iteration | Sign change | |

**Year 13 Mathematics – Key vocabulary list**

Appendix 1: Term 2

**Unit P2-9: Differentiation**

| | | | |
|---|---|---|---|
| Chain rule | From first principles | Inverse trigonometric function | Product rule |
| Concave | Function of a function | Limiting process | Quotient rule |
| Convex | Implicit | Logarithmic function | Rate of change |
| Differential equation | Implicit differentiation | Maximum | Second derivative |
| Differentiate | Interval (a,b), $a < x < b$ | Minimum | Stationary point |
| Explicit | Interval (a,b], $a < x \leq b$ | Parametric differentiation | Trigonometric function |
| Exponential function | Interval [a,b], $a \leq x \leq b$ | Point of inflection | Turning point |

**Unit P2-11: Integration**

| | | | |
|---|---|---|---|
| Approximation | Identity | Ordinates | Strips |
| Boundary conditions | Integrate | Overestimate | Trapezium rule |
| Change limits | Integration by parts | Partial fractions | Trigonometric function |
| Differential equation | Integration by substitution | Particular solution | Underestimate |
| Differentiate | L I A T E | Reverse chain rule | Variable |
| Exponential function | Limits | Separate variables | Width of strip |
| Exponential model | Logarithm | Standard integrals | |

**Unit M2-4: Moments**

| | | | |
|---|---|---|---|
| Anticlockwise | Horizontal | Pivot | Take moments about |
| Centre of mass | Lamina | Reaction | Tension |
| Clockwise | Moment | Resolve forces | Uniform |
| Coplanar forces | Non-uniform | Resultant force | Vertical |
| Equilibrium | On the point of tilting | Resultant moment | Weight |
| Force | Perpendicular distance | Rigid body | |

**Year 13 Mathematics – Key vocabulary list**

Appendix 1: Term 3

**Unit M2-5: Force and friction**

| | | | |
|---|---|---|---|
| Acceleration | Horizontal | Normal reaction | Smooth |
| Coefficient of friction | Inclined plane | Parallel to plane | Triangle of forces |
| Component | Limiting equilibrium | Particle | Vertical |
| Direction of motion | Magnitude | Perpendicular to plane | Weight |
| Equation of motion | Mass | Resolve | |
| Friction | Maximum friction | Rough | |

**Unit M2-7: Application of forces**

| | | | |
|---|---|---|---|
| "On the point of moving" | Inclined plane | Peg | Smooth |
| Acceleration | Inextensible string | Perpendicular | Static equilibrium |
| Coefficient of friction | Ladder | Perpendicular distance | Stationary |
| Connected particles | Light | Pulley | Tension |
| Dynamic | Limiting equilibrium | Resolve | Uniform |
| Equation of motion | Magnitude | Resultant force | Vertical |
| Force exerted | Moments | Resultant moment | Weight |
| Gravity | Normal reaction | Rigid body | |
| Horizontal | Parallel | Rough | |

**Unit S2-1: Regression, correlation and hypothesis testing**

| | | | |
|---|---|---|---|
| Accept | Extrapolation | Negative correlation | Regression |
| Alternative hypothesis $H_1$ | Gradient | Null hypothesis $H_0$ | Reject |
| Bivariate data | Hypothesis | Observed value | Sample |
| Change of variable | Interpolation | One-tailed test | Sample size |
| Critical region | Linear correlation | Population | Significance level |
| Critical value | Log laws | Positive correlation | Two-tailed test |
| Exponential model | Logarithm | Product moment correlation coefficient | Variable |

**Unit S2-3: The normal distribution**

| | | | |
|---|---|---|---|
| Approximate | Cumulative | Observation | Standard normal curve |
| Asymptote | Discrete | One-tailed test | Standardise |
| Bell-shaped curve | Inverse normal distribution | Parameter | Symmetrical |
| Binomial distribution | Mean $\mu$ | Point of inflection | Test statistic |
| Continuity correction | Median | Probability distribution | Two-tailed test |
| Continuous | Normal cumulative distribution | Sample mean $\bar{X}$ | Variance |
| Critical region | Normal distribution | Significance level | $z$- values |
| Critical value | Normal distribution curve | Standard deviation $\sigma$ | |

**Year 13 Mathematics – Key vocabulary list**

Appendix 1: Term 4

**Unit M2-6: Projectiles**

| | | | |
|---|---|---|---|
| Angle of projection | Horizontal | Point of projection | Resolve |
| Components | Initial velocity | Projectile | Trajectory |
| Gravity | Magnitude | Projectile motion formula | Velocity |
| Greatest height | Parametric equations | Range | Vertical |

**Unit M2-8: Further kinematics**

| | | | |
|---|---|---|---|
| Acceleration | Equation of motion | Magnitude | Resolve |
| Calculus | Force | Newton's 2nd law | Variable acceleration |
| Component | Initial conditions | Newton's equations of motion suvat | Vector |
| Constant acceleration | Initial position | Position vector | Velocity |
| Differentiate | Integrate | Projectile | |
| Displacement | Kinematics | Rate of change of … | |

**Unit S2-2: Conditional probability**

| | | | |
|---|---|---|---|
| "Given that" | Event | Probability of outcome *P(R)* | Tree diagram |
| Complement A' | Independent | Restricted sample space | Union ∪ |
| Conditional probability | Intersection ∩ | Sample space | Venn diagram |
| Dependent | Number of outcomes *n(R)* | Set notation | |