

**KS4 Learning Journey**  
**GCSE Higher Tier – Year 11 Learning Cycle 1**

Please watch the video on [www.corbettmaths.com](http://www.corbettmaths.com) for each topic.

Further Quadratics	Video number
Plot a quadratic graph from a table of values	264
Find the roots of a quadratic from the graph	266
Solve a quadratic equation using the quadratic formula	267
Complete the square for a quadratic	10
Use the completed square form to solve a quadratic equation	267a
Use the completed square form to deduce the turning point of a quadratic graph	10
Solve a quadratic equation which requires rearranging into the form $ax^2 + bx + c = 0$	

Graphs	Video number
Use and interpret scatter graphs	165,166
Recognise correlation and understand that it does not indicate causation	168
Draw lines of best fit and use them to make predictions	167
Interpret and construct tables, charts and diagrams	54,147, 148,148a, 148b
Interpret and construct pie charts	163,164

Advanced Simultaneous Equations	Video number
Solve a linear equation and a quadratic equation simultaneously	298
Use the above to find the intersection coordinates of a straight line and a curve including circles	298

Vectors	Video number
Addition and subtraction of vectors and multiplication of vectors by a scalar	353a
Diagrammatic and column representations of vectors	353a
Use of vectors to construct geometric arguments and proofs	353

Advanced Trigonometry	Video number
Know and apply the sine rule to find angles and sides	333,334
Know and apply the cosine rule to find angles and sides	335,336
Know and apply the trigonometric formula for area of a triangle	337
Recognise and sketch the graphs for $y=\cos x$ , $y=\sin x$ , $y=\tan x$	338,339,340
Sketch translations and reflections of a given function	323,324

Indices and Standard Form	Video number
Understand and calculate with negative and fractional indices	173,175
Convert between numbers given in and out of standard form	300
Calculate with numbers in standard form	301,302,303

Bounds	Video number
Use inequalities to represent error bounds when rounding numbers	377
State and use error bounds	377

## KS4 Learning Journey

### GCSE Higher Tier – Year 11 Learning Cycle 2

Please watch the video on [www.corbettmaths.com](http://www.corbettmaths.com) for each topic.

Other Graphs	Video number
Recognise and sketch cubic and reciprocal graphs	344
Recognise the equation of a circle including identifying its radius	12
Find the equation of a tangent to a circle at a given point	372

Sampling, Surveys & Time Series	Video number
Infer properties of populations or distributions from a sample, whilst knowing the limitations of sampling.	281a
Construct and interpret line graphs and time series graphs	382

Advanced 3D Shapes	Video number
Calculate the surface area of spheres, pyramids, cones and 3D shapes made from combinations of these shapes	313,314
Calculate the volume of spheres, pyramids and 3D shapes made from combinations of these shapes	359,360
Calculate the volume of spheres, pyramids, cones and 3D shapes made from combinations of these shapes	361
Name common 3D shapes and their properties e.g. faces, vertices and edges	3,5
Know the definition of a prism	
Construct and interpret plans and elevations of 3D shapes	354
Calculate volume of prisms	356

Proportionality	Video number
Express a relationship between two quantities as a ratio or a fraction	269a
Solve problems involving direct and inverse proportion	254
Understand that if X is inversely proportional to Y then X is proportional to $1/Y$	255
Construct and interpret equations that describe direct and inverse proportion	151
Recognise and interpret graphs that illustrate direct and inverse proportion	

**KS4 Learning Journey**  
**GCSE Higher Tier – Year 11 Learning Cycle 3**

Please watch the video on [www.corbettmaths.com](http://www.corbettmaths.com) for each topic.

Kinematics	Video number
Plot and interpret graphs involving distance, speed and acceleration.	171
Calculate or estimate gradients of graphs and areas under graphs and interpret results in cases such as distance-time graphs, velocity-time graphs and financial contexts.	389
Interpret the gradient of a straight-line graph as a rate of change.	189
Use the gradients of chords and tangents to find average and instantaneous rates of change.	390a

Functions	Video number
Interpret an expression as functions with an input and an output	386
Find an inverse function	369
Find a composite function	370

Iteration	Video number
Work with general iterative processes	373
Use systematic trial and improvement to find approximate solutions to equations where there is no simple analytical method	116

Proof	Video number
Argue mathematically to show algebraic expressions are equivalent	
Use algebra to support and construct arguments to include proof	365
Apply angle facts, triangle congruence and similarity to obtain simple proofs	365
Understand Pythagoras' theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs	366