

As you transition from Year 11 to Year 12, it is very important to refresh your memory on certain core mathematical skills. Moreover, it is vital that you have a sound understanding of some more difficult skills. In the tables below, you will find **180 skills** that you should be confident with as you start Year 12. Get 100% on each and use the videos if you are stuck.

## Number

Topics	Clip Number	R	A	G
<b>Indices, powers &amp; roots</b>				
Index form 1 (intro)	<a href="#">102</a>			
Index form 2 (power of 0 & 1)	<a href="#">103</a>			
Index form 3 (power of negative integers)	<a href="#">104</a>			
Index form 4 (multiplying indices)	<a href="#">105</a>			
Index form 5 (dividing indices)	<a href="#">106</a>			
Index form 6 (power of power rule)	<a href="#">107</a>			
Index form 7 (powers of unit fractions)	<a href="#">108</a>			
Index form 8 (powers of non-unit fractions)	<a href="#">109</a>			
Index form 9 (combination of rules)	<a href="#">110</a>			
Multiplication & division with surds 1	<a href="#">113</a>			
Multiplication & division with surds 2	<a href="#">114</a>			
Simplifying surds	<a href="#">115</a>			
Brackets involving surds 1	<a href="#">116</a>			
Brackets involving surds 2	<a href="#">117</a>			
Rationalising surds 1	<a href="#">118</a>			
Rationalising surds 2	<a href="#">119</a>			
Order of operations 3 (indices & roots)	<a href="#">120</a>			

## Algebra

Topics	Clip Number	R	A	G
<b>Substitution</b>				
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Substitution 2	<a href="#">781</a>			
Substitution 3	<a href="#">782</a>			
Substitution 4	<a href="#">783</a>			
Substitution 5	<a href="#">784</a>			
Substitution 6	<a href="#">785</a>			
Substitution 7	<a href="#">786</a>			
Substitution 8	<a href="#">787</a>			
Substitution (Equations of motion 1)	<a href="#">788</a>			
Substitution (Equations of motion 2)	<a href="#">789</a>			

## Algebra (continued)

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<b>Manipulating expressions</b>				
Collecting like terms 2	<a href="#">157</a>			
Simplifying expressions involving multiplication	<a href="#">158</a>			
Simplifying expressions involving division	<a href="#">159</a>			
Expand two single brackets & simplify	<a href="#">161</a>			
Expand double brackets 1	<a href="#">162</a>			
Expand double brackets 2	<a href="#">163</a>			
Expand double brackets 3	<a href="#">164</a>			
Expand brackets (difference of two squares)	<a href="#">165</a>			
Expand triple brackets	<a href="#">166</a>			
HCF of algebraic expressions	<a href="#">167</a>			
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Factorise simple expressions 2	<a href="#">169</a>			
Simplifying expressions by factorising 1	<a href="#">170</a>			
Simplifying expressions by factorising 2	<a href="#">171</a>			
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Indices with algebraic expressions 1	<a href="#">173</a>			
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Indices with algebraic expressions 3	<a href="#">175</a>			
<b>Linear equations</b>				
Solve 1 step equations (balance method)	<a href="#">178</a>			
Solve 2 step equations (involving multiplication)	<a href="#">179</a>			
Solve 2 step equations (involving division)	<a href="#">180</a>			
Solve 2 step equations (x on denominator)	<a href="#">181</a>			
Solve 2 step equations (x negative)	<a href="#">182</a>			
Solve 3 step equations	<a href="#">183</a>			
Solve equations with x on both sides 1	<a href="#">184</a>			
Solve equations with x on both sides 2	<a href="#">185</a>			
Solve equations with x on both sides 3	<a href="#">186</a>			
Solve equations with algebraic fractions	<a href="#">187</a>			
Setup & solve equations (in context)	<a href="#">188</a>			
Simultaneous equations by elimination 4	<a href="#">193</a>			
Simultaneous equations by substitution	<a href="#">194</a>			
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<b>Linear sequences and graphs</b>				
Midpoint of a line segment	<a href="#">200</a>			
Gradient of a line segment 1	<a href="#">201</a>			
Gradient of a line segment 2 (negative)	<a href="#">202</a>			
Gradient of a line segment 3 (fractions)	<a href="#">203</a>			
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## Algebra (continued)

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Straight line graphs (perpendicular) 2	<a href="#">216</a>			
Straight line graphs (alternative way to define)	<a href="#">220</a>			
Solving equations & straight lines	<a href="#">217</a>			
Solving simultaneous equations using straight lines 1	<a href="#">218</a>			
Solving simultaneous equations using straight lines 2	<a href="#">219</a>			
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Factorise quadratic expressions 1	<a href="#">223</a>			
Factorise quadratic expressions 2	<a href="#">224</a>			
Factorise quadratic expressions 3	<a href="#">225</a>			
Factorise quadratic expressions 4	<a href="#">226</a>			
Factorise quadratic expressions 5	<a href="#">227</a>			
Factorise quadratic expressions 6	<a href="#">228</a>			
Simplify algebraic fractions (involving quadratics)	<a href="#">229</a>			
Completing the square 1	<a href="#">235</a>			
Completing the square 2	<a href="#">236</a>			
Completing the square 3	<a href="#">237</a>			
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Solving quadratic equations 1 (by factorising)	<a href="#">230</a>			
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Solving quadratic equations 3 (by factorising)	<a href="#">232</a>			
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Solving by completing the square 1	<a href="#">238</a>			
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Simultaneous equations involving quadratics	<a href="#">246</a>			
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Find the line of symmetry of a quadratic graph	<a href="#">254</a>			
Find the turning point of quadratic graphs 1	<a href="#">255</a>			
Find the turning point of quadratic graphs 2	<a href="#">256</a>			
Sketch a fully labelled quadratic graph	<a href="#">257</a>			
The discriminant & quadratic graphs	<a href="#">258</a>			
Simultaneous equations using graphs (quadratic & linear)	<a href="#">259</a>			
Using a quadratic graph to solve a related quadratic equation	<a href="#">260</a>			

## Algebra (continued)

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<b>Exponentials</b>				
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Exponential graphs (drawing)	<a href="#">302</a>			
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Points on exponential graphs 2	<a href="#">803</a>			
Real life exponential growth 1	<a href="#">804</a>			
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Real life exponential growth 3	<a href="#">806</a>			
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<b>Circles</b>				
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Equation of a circle 2 (write equation)	<a href="#">315</a>			
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Multiple inequalities on a number line	<a href="#">268</a>			
Solve single linear inequalities 1 (positive x)	<a href="#">269</a>			
Solve single linear inequalities 2 (negative x)	<a href="#">270</a>			
Solve single linear inequalities 3 (difficult)	<a href="#">271</a>			
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## Algebra (continued)

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Change the subject of the formula 1 (1 step)	<a href="#">280</a>			
Change the subject of the formula 2 (2 step)	<a href="#">281</a>			
Change the subject of the formula 3 (negative x)	<a href="#">282</a>			
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<b>Important graphs</b>				
Cubic graphs (recognising)	<a href="#">299</a>			
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Reciprocal graphs 2	<a href="#">301</a>			
Sine graph	<a href="#">303</a>			
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<b>Graph transformations</b>				
Graph transformations 1 $f(x) \pm a$	<a href="#">307</a>			
Graph transformations 2 $f(x \pm a)$	<a href="#">308</a>			
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## Geometry and measures

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Non-calculator trigonometry 5	<a href="#">849</a>			
Non-calculator trigonometry 6	<a href="#">850</a>			
Non-calculator trigonometry 7	<a href="#">851</a>			
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Non-calculator trigonometry (Problem solving 2)	<a href="#">853</a>			