

Year 13 A-Level Mathematics Paper 2 Revision list 2019

Year 1 - Material

1	Algebraic expressions	
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2	Quadratics	
2.1	Solving quadratic equations	
2.2	Completing the square	Q5(a)
2.3	Functions	
2.4	Quadratic graphs	Q5(b)
2.5	The discriminant	
2.6	Modelling with quadratics	

3	Equations and inequalities	
3.1	Linear simultaneous equations	
3.2	Quadratic simultaneous equations	
3.3	Simultaneous equations on graphs	
3.4	Linear inequalities	
3.5	Quadratic inequalities	Q9(b)
3.6	Inequalities on graphs	
3.7	Regions	

4	Graphs and transformations	
4.1	Cubic graphs	
4.2	Quartic graphs	
4.3	Reciprocal graphs	
4.4	Points of intersection	Q2(a)
4.5	Translating graphs	Q5(c)i
4.6	Stretching graphs	
4.7	Transforming functions	

5	Straight line graphs	
5.1	$y = mx + c$	
5.2	Equations of straight lines	
5.3	Parallel and perpendicular lines	
5.4	Length and area	
5.5	Modelling with straight lines	

6	Circles	
6.1	Midpoints and perpendicular bisectors	
6.2	Equations of a circle	
6.3	Intersection of lines and circles	
6.4	Tangent and chord properties	
6.5	Circles and triangles	

7	Algebraic methods	
7.1	Algebraic fractions	
7.2	Dividing polynomials	
7.3	The factor theorem	Q1
7.4	Mathematical proof	Q10i
7.5	Methods of proof	

8	The binomial expansion	
8.1	Pascal's triangle	
8.2	Factorial notation	

8.3	The binomial expansion	
8.4	Solving binomial problems	
8.5	Binomial estimation	

9	Trigonometric ratios	
9.1	The cosine rule	
9.2	The sine rule	
9.3	Areas of triangles	
9.4	Solving triangle problems	
9.5	Trigonometric graphs	
9.6	Transformations of trig graphs	

10	Trig identities and equations	
10.3	Trigonometric identities	
10.4	Simple trigonometric equations	Q12c
10.5	Harder trigonometric equations	
10.6	Equations and identities	

11	Vectors	
11.1	Vectors	
11.2	Representing vectors	
11.3	Magnitude and direction	
11.4	Position vectors	
11.5	Solving geometric problems	
11.6	Modelling with vectors	

12	Differentiation	
12.5	Differentiating polynomials	
12.6	Gradients of tangents and normal	
12.7	Increasing and decreasing functions	Q3(b)
12.8	Second order derivatives	
12.9	Stationary points	
12.10	Sketching gradient functions	
12.11	Modelling with differentiation	

13	Integration	
13.2	Indefinite integrals	
13.3	Finding functions	
13.4	Definite integrals	
13.5	Areas under curves	Q8(a)
13.6	Areas under the x -axis	Q8(b)
13.7	Areas between curves and lines	

14	Exponentials and logarithms	
14.1	Exponential functions	
14.2	$y = e^x$	
14.3	Exponential modelling	Q7(a)
14.4	Logarithms	
14.5	Laws of logarithms	Q9(a)
14.6	Solving equations using logarithms	
14.7	Working with natural logarithms	
14.8	Logarithms and non-linear data	

Year 2 – Material

1	Algebraic methods	
1.1	Proof by contradiction	
1.2	Algebraic fractions	
1.3	Partial fractions	
1.4	Repeated factors	
1.5	Algebraic division	

2	Functions and graphs	
2.1	The modulus function	Q10ii
2.2	Functions and mappings	Q5(c)ii
2.3	Composite functions	
2.4	Inverse functions	
2.5	$y = f(x) $ and $y = f(x)$	Q12(b)
2.6	Combining transformations	
2.7	Solving modulus problems	

3	Sequences and series	
3.1	Arithmetic sequences	
3.2	Arithmetic series	
3.3	Geometric sequences	Q11
3.4	Geometric series	Q11
3.5	Sum to infinity	
3.6	Sigma notation	
3.7	Recurrence relations	
3.8	Modelling with series	Q11

4	Binomial expansions	
4.1	Expanding $(1 + x)^n$	
4.2	Expanding $(a + bx)^n$	Q4
4.3	Using partial fractions	

5	Radians	
5.1	Radian measure	
5.2	Arc length	
5.3	Areas of sectors and segments	
5.4	Solving trigonometric equations	
5.5	Small angle approximations	Q2(b)

6	Trigonometric functions	
6.2	Graphs of Sec, Cosec and Cot	
6.4	Trigonometric identities	
6.5	Inverse trigonometric functions	

7	Trigonometry and modelling	
7.1	Addition formulae	
7.2	Using the angle addition formulae	
7.3	Double-angle formulae	Q6(a)
7.4	Solving trigonometric equations	Q6(b)
7.5	Simplifying $a \cos x \pm b \sin x$	
7.6	Proving trigonometric identities	
7.7	Modelling with trig functions	Q12d

8	Parametric equations	
8.1	Parametric equations	
8.2	Using trigonometric identities	
8.3	Curve sketching	
8.4	Points of intersection	
8.5	Modelling with parametric equations	

9	Differentiation	
9.1	Differentiating $\sin x$ and $\cos x$	
9.2	Exponentials and logarithms	
9.3	The chain rule	
9.4	The product rule	Q12(a)
9.5	The quotient rule	Q3(a)
9.6	Differentiating trig functions	
9.7	Parametric differentiation	
9.8	Implicit differentiation	
9.9	Using the second derivative	
9.10	Rates of change	

10	Numerical methods	
10.1	Locating roots	
10.2	Iterations	
10.3	The Newton-Raphson method	
10.4	Applications to modelling	

11	Integration	
11.1	Integrating standard functions	
11.2	Integrating $f(ax + b)$	
11.3	Using trigonometric identities	
11.4	Reverse chain rule	
11.5	Integration by substitution	
11.6	Integration by parts	
11.7	Partial fractions	Q13
11.8	Areas under parametric curves	
11.9	The trapezium rule	
11.10	Solving differential equations	
11.11	Modelling with differential equations	

12	Vectors	
12.1	3D coordinates	
12.2	Vectors in 3D	
12.3	Solving geometric problems	
12.4	Applications to mechanics	

Topics that appeared on Paper 1 2019

We have highlighted in red key topics to help focus your revision.

The Mathematics department wish you the best of luck with your revision.

Make sure to drop by and see us if you need any help.