

Edexcel A-Level Mathematics Bridging Work

Specification Code: 9MA0

Specification Link:

<https://qualifications.pearson.com/content/dam/pdf/A%20Level/Mathematics/2017/specification-and-sample-assesment/a-level-13-mathematics-specification-issue4.pdf>

Core Text(s)

Edexcel AS and A Level Mathematics Pure Mathematics Year 1 /AS

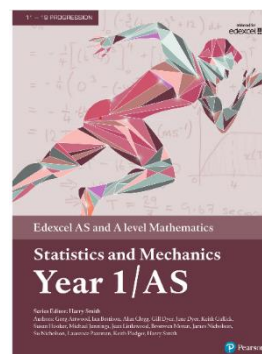
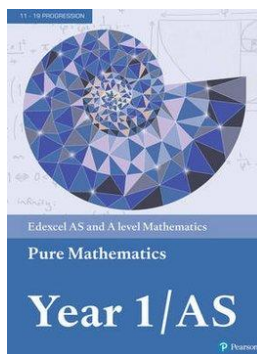
Pearson

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Edexcel AS and A Level Mathematics Statistics and Mechanics Year 1 /AS

Pearson

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You do **not** need to buy these as we have digital versions free for all students. Login details will be provided on Satchel One.

Bridging Work (to be submitted by the first lesson in September)

Activity 1 - Compulsory

Complete the following work on Hegarty Maths. To login just go to [hegartymaths.com](https://www.hegartymaths.com) and enter your first name, last name and date of birth. You will then be required to create a password. If this does not work please contact Mr Egan directly on segan@themisbourne.co.uk or Mr Hodder Smith on esmith@themisbourne.co.uk.

There is approximately 24 hours of work here if you watch all the videos and take the average amount of time to do the questions. I would recommend doing them in the order given but feel free to skip some if you are struggling too much with them but do come back to them later. I would say look at the questions first and then use your own judgement on whether you need to watch the video. You get two chances for each question so if you get the first one wrong try the second question before you put in another answer. If you get the second question wrong either watch the video or rewatch it. The questions are of the same type as in the attached video so they work very well together. The last four timings on length of exercise were estimates as no data was available.

	Topics to Prepare for A-level Maths	Hegarty Maths Videos and Resources	Length of video (mins)	Average length of time on exercise (mins)
1	Manipulating algebraic expressions	166 - Expanding Triple Brackets	11	25
		172 - Expressions with Algebraic Fractions	10	10
2	Surds	115 - Simplifying Surds	11	13
		117 - Brackets Involving Surds 2	11	6
		119 - Rationalising Surds 2	10	10
3	Rules of indices	104 – Index form 3 (power of negative integers)	10	6
		109 – Index form 8 (powers of non-unit fractions)	10	11
		174 - Indices With Algebraic Expressions 2	11	11
		175 - Indices With Algebraic Expressions 3	10	13
4	Factorising expressions	227 - Factorising Quadratic Expressions 5	11	10
		228 - Factorising Quadratic Expressions 6	11	12
		229 - Simplifying Algebraic Fractions (involving quadratics)	9	21
5	Completing the square	235 - Completing the Square 1	11	7
		236 - Completing the Square 2	7	17
		237 - Completing the Square 3	10	16
6	Solving quadratic equations	232 - Solving Quadratic Equations (by Factorising) 3	9	11
		238 - Solving by Completing the Square 1	14	8
		242 - Solving using the Quadratic Formula	9	12
		244 - Quadratic Equations from Algebraic Fractions	11	17
7	Sketching quadratic graphs	252 - Finding the y-intercept of a Quadratic Graph	6	4
		253 - Finding the x-intercept (Roots) of a Quadratic Graph	9	9
		256 - Finding the Turning Point of a Quadratic Graph 2	10	6
		257 - Sketch a Fully Labelled Quadratic Graph	11	3
8	Solving linear simultaneous equations	193 - Simultaneous Equations by Elimination 4	11	14
		194 - Simultaneous Equations by Substitution	10	10

9	Solving quadratic simultaneous equations	314 - Equation of a Circle 1	11	4
		246 - Simultaneous Equations Involving Quadratics	8	16
10	Solving simultaneous equations graphically	259 - Simultaneous Equations Using Graphs (Quadratic & Linear)	5	4
11	Linear inequalities	273 - Linear Inequalities as Graph Regions 1	8	6
		274 - Linear Inequalities as Graph Regions 2	8	2
		275 - Linear Inequalities as Graph Regions 3	9	3
12	Quadratic inequalities	277 - Solving Quadratic Inequalities	11	9
13	Sketching cubic and reciprocal graphs	298 - Cubic Graphs (from a Table of Values)	11	13
		299 - Cubic Graphs (Recognising)	7	2
		300 - Reciprocal Graphs 1	10	8
14	Translating graphs	307 - Graph Transformations 1 $f(x)+a$	10	3
		308 - Graph Transformations 2 $f(x+a)$	11	3
15	Straight line graphs	210 - Straight Lines Graphs 5	10	4
		213 - Straight Lines Graphs 8	9	11
16	Parallel and perpendicular lines	214 - Straight Line Graphs (Parallel)	7	6
		216 - Straight Line Graphs (Perpendicular) 2	11	7
		320 - Circle Normals and Tangents	11	6
17	Pythagoras' Theorem	506 - 3D Pythagoras 2	8	11
		501 - Pythagoras (Applied) 1	11	14
		502 - Pythagoras (Applied) 2	11	12
18	Direct and inverse proportion	344 – Algebraic Direct Proportion 2	11	15
		346 – Algebraic Inverse Proportion 1	11	13
19	Circle theorems	604 - Circle Theorems (Multi Step) 1	15	18
		605 - Circle Theorems (Multi Step) 2	14	12
		606 - Circle Theorems (Multi Step) 3	14	13
20	Trigonometry	585 - 3D Trigonometry 5	11	18
		303 - Sine Graph	11	3
		304 - Cosine Graph	9	2
		305 - Tangent Graph	7	2

20	Trigonometry	521 - Sine Rule (Find Side) 1	11	14
		523 - Sine Rule (Find Angle) 1	9	13
		525 - Sine Rule (Ambiguous Case)	11	14
		527 - Cosine Rule (Find Side) 1	8	11
		529 - Cosine Rule (Find Angle) 1	9	16
21	Rearranging equations	186 - Solve Equations With x on Both Sides 3	10	20
		187 - Solve Equations With Algebraic Fractions	9	15
22	Volume and surface area of 3D shapes	576 - Cones (Volume) 1	10	13
		578 - Frustums (Volume)	11	24
		579 - Rectangular Based Pyramids (Volume)	8	11
		580 - Spheres (Volume) 1	8	11
23	Area under a graph and gradients	892 - Area Under a Curve 2	15	15
		893 - Area Under a Curve 3	14	15
		889 - Gradient at a Point on a Curve	13	15
		890 - Instantaneous Rate of Change	20	15

Total Time (mins) 709 744

Total Time (hours) 11.8 12.4

Activity 2 - Optional extension work

Hegarty Maths broadcast videos last year every day at 2pm on YouTube for last year's year 11 students. They are good quality and I recommend watching as many of these as you can especially on topics that you are weaker in.

https://www.youtube.com/playlist?list=PLxHVbxhSvleR5tntP2FxYBJCoY5-pD_Z8

Each video has a link to a worksheet that you can download to help you to work along with the exercise.

Activity 3 - Optional extension work

If you find activity 1 relatively straightforward and it hasn't taken up too much of your time I would recommend you do the following exercises. They are on differentiation, which is the first topic in A-level maths that is not on the GCSE course. It is a major part of the course and the earlier you get to grips with it the better. The first exercise might be tough for some of you but it gives context to what follows. So do not let the first video and exercise put you off as after that it gets a bit easier. The more of these exercises that you can do, the easier next year will be. The timings are for the videos only as there was no data for the average time taken to complete the exercises.

Advance Topics to Prepare for A-level Maths	Hegarty Maths Videos and Resources	Length of video
Differentiation	903 -Differentiation from first principles	25
	904- Differentiation (1)	21
	905- Differentiation (2)	11
	906- Differentiation (3)	15
	907- Differentiation (4)	15
	908- Differentiating to find the gradient (1)	10
	909- Differentiating to find the gradient (2)	13
	910- Differentiating to find the gradient (3)	14
	911- Differentiating to find the gradient (4)	12
	912- Differentiating to find the tangent	12
	913- Differentiating to find turning points (1)	11
	914- Differentiating to find turning points (2)	13
	915- Classifying turning points (1)	14
	916- Classifying turning points (2)	13
	917- Differentiating to find rates of change	9
	918- Differentiating to find velocity and acceleration	15
	Total Time (mins)	223
	Total Time (hours)	3.7