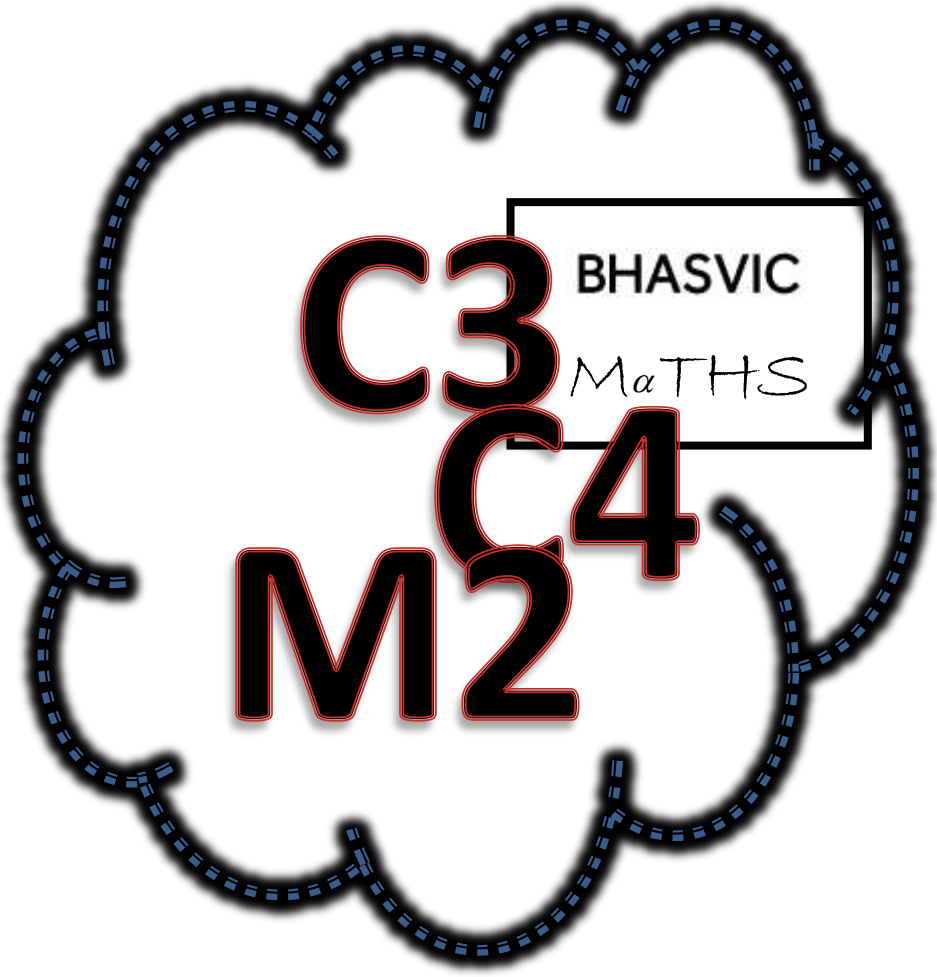
A Level Maths
The Final Countdown VJM



Name.....

A Level Maths The Final Countdown VJM

From March 12th, your weekly assignment will consist of three old exam papers.
The plan is shown on **page 4**. Each week there will be a test on a paper (that you won't have seen before) which I will mark and get back to you next lesson.
If you follow this plan, you will complete a total of 14 papers for each module plus resit papers

How to get 100% in every exam, first of all believe it!

The key to success is **honest self-assessment** followed by **remedial action**.
If you are honest with yourself about how much you understand the work **and** if you take remedial action to improve your weak areas, you will get a grade A* in your Maths A2 course. (Unless you make lots of expensive errors).

The Mark Scheme Is Your Enemy

When you work through these papers, do **NOT** use the mark scheme every time you get stuck; try to work out what to do by yourself. You won't have the mark scheme in the real exam! Do the test in 90 minutes and then mark it. If you don't get full marks on a question, find out what went wrong (use the textbook, ask your buddy, use a video on exam solutions or any other form of support). Then go back to it a day later and do it again (without looking at the mark scheme). Keep doing this until you can get the question right without help. This is the way you will improve your understanding.
Record the paper on you exam record card

In the mark schemes, the following symbols are used:
M marks: method marks are awarded for 'knowing a method and attempting to apply it'.
A marks: Accuracy marks can only be awarded if the relevant method (M) marks have been earned.
B marks are for the correct answer (method not necessary)

MadAsMaths/Solomon Papers

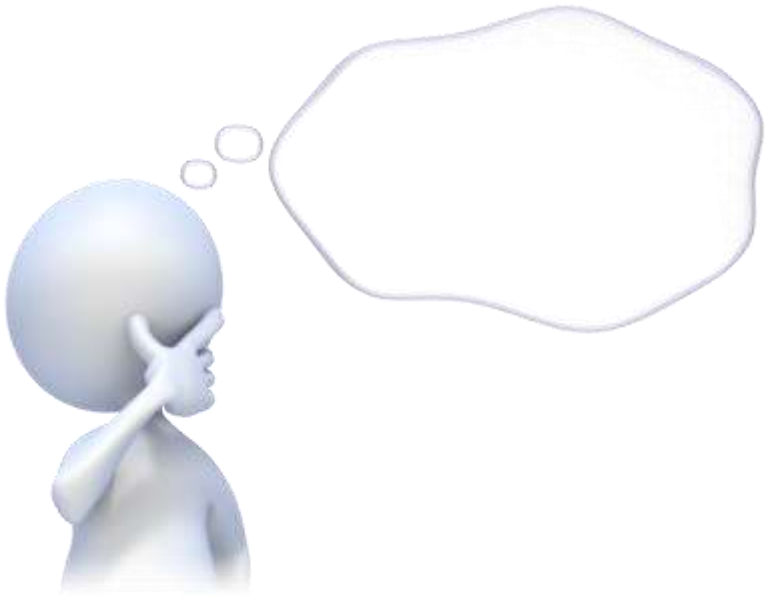
A good way to practice is to try lots of hard questions. The Solomon papers are slightly (but not much) harder than the EDEXCEL papers. They are on the VLE if you want to do some extra questions. The Miscellaneous Exercises at the end of each Chapter in the textbook are also a very good source.
The C3 and C4 papers on the MadAsMaths website are excellent.
C3: http://www.madasmaths.com/archive_iygb_practice_papers_c3_practice_papers.html
C4: http://www.madasmaths.com/archive_iygb_practice_papers_c4_practice_papers.html

Remember

Remember: never cross out a whole solution. Draw a line under it. If you do a question twice and produce one correct solution, you will get full marks and your wrong solution will be ignored.

Resources

- Use the topic booklets given out in class
- Look at videos and resources from other websites, e.g.
    - Exam Solutions: https://www.youtube.com/user/ExamSolutions
    - Mr Hegarty: https://www.youtube.com/user/HEGARTYMATHS/videos
    - Physics and Maths tutor http://www.physicsandmathstutor.com/
    - MadAsMaths http://www.madasmaths.com/



Formulae to Learn

The list of the formulae that you need to learn starts on page 9. Make sure you remember **all** these formulae.

Record Card

Record your marks in the table on page 14. I will also keep a copy of this at College. Keep this table up to date. Use the table on page 13 to convert your mark to a UMS.

Plan

Start week beginning	My topic studied this week Write here	Weekly Assignment ,3 papers done, redone marked and entered on record card tick	Resit papers done, redone Tick (make a record card)	Lesson topic	Lesson topic
March 12th		Summer 2010 C3 Summer 2010 C4 Summer 2010 M2		C4 Volumes of revolution Cartesian and Parametric	C3 Algebra and Functions including Domain and Range*
March 19th		January 2011 C3 January 2011 C4 January 2011 M2		C4 Vectors	M2 Statics (ladders)
March 26th		Summer 2011 C3 Summer 2011 C4 Summer 2011 M2 January 2012 C3 January 2012 C4 January 2012 M2	***C4 Mock in lesson on March 27th***	M2 Centre of Mass	C4 Solving Differential Equations
April 16th		Summer 2012 C3 Summer 2012 C4 Summer 2012 M2	***M2 Mock in lesson on April 17th***	C4 Parametric Equations tangents normal areas	M2 Kinematics Projectiles
April 23rd		January 2013 C3 January 2013 C4 January 2013 M2	***C3 Mock in lesson on April 24th***	M2 Work Energy Power	C3 trig and R cos (x- α)
April 30th		Summer 2013 C3 Summer 2013 C4 Summer 2013 M2		M2 Collisions	C3 Trig Inverse trig arcsinx etc
May 7th		Summer 2013(R) C3 Summer 2013(R) C4 Summer 2013(R) M2		C4 Binomial series	C4 Differentiation Implicit ,sec cosec cot Connected rates of change
May 14th	Study leave starts May 21st	Summer 2014 C3 Summer 2014 C4 Summer 2014 M2		M2 Motion in a plane	C4 Trapezium Rule Numerical methods
May 21st		Summer 2014(R) C3 Summer 2014(R) C4 Summer 2014(R) M2			
May 28th		Summer 2015 C3 Summer 2015 C4 Summer 2015 M2			

*In these lessons you will be free to revise whatever topic you feel is a priority.

Provisional exam dates:
C1 (resit): 16th May a.m. C2 (resit): 23rd May a.m. M1 (resit): 6th June a.m. S1 (resit): 13th June a.m.
C3: 19th June p.m. C4: 22nd June a.m. M2: 15th June p.m. S2: 25th June a.m. D1: 15th June p.m.

(please refer to your exam timetable for confirmation of these dates)

How To Study An Exam Paper

DO NOT simply copy out the mark scheme.

Here is why we ask you to *study* exam papers. By following this programme of exam paper study, you will:

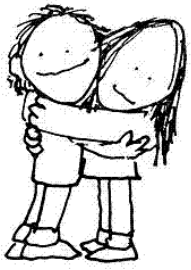
Improve your knowledge of how to solve standard problems… By completing every question from past papers you will encounter almost every question that has been put into your real exam.

Improve the accuracy of your algebra… The exam board have told us that the only difference between E grade students and A grade students is that the A grade students make fewer algebraic errors. *Being able to answer the questions is not enough*. You need to be able to answer them without making expensive errors, and this is not something you can learn at the last minute. It takes practice.

Improve the speed of your algebra… *Your real exam will be an algebra sprint.* It is very important that you get used to the speed required.

***Studying* an exam paper is not the same as just doing an exam paper.**

This is what you should not do:



DON'T Sit down and complete an exam paper…... nice and cosy just you and the mark scheme to glance at when you get stuck.

DON'T keep jumping over the bits of questions you can't do. Are you really learning like this or just testing what you know already?
I can do this but I can't do this so I'll jump over it, etc……I'm doing ok at maths especially with all the bits I can do!

Do you have any more knowledge? NO. You have read the solutions to the questions you couldn't do, but this doesn't mean you can actually do them ☹

Have you improved the accuracy of your algebra? NO. As soon as you finished the paper you went to the mark scheme. You didn't practice the most important part of an exam – looking for and correcting your errors ☹

Have you improved the speed of your algebra? NO. You didn't try to complete each question in a fixed number of minutes so you still have no idea whether you were going at exam speed ☹

This is what you should do:

1. **DO** Complete the exam paper in exam conditions. This means you continue working for the full 90 minutes and make a real determined effort to find your errors before the time is up.
2. **DO** the paper on your own without
    a. The mark scheme
    b. A friend at your side
    c. Textbooks
    d. Any other support
3. **DO** Mark the paper carefully using the mark scheme
4. **DO** Look at all the marks you lost – categorising them as being due to
    a. LU = Lack of understanding (not knowing what to do)
    b. EE = An expensive error (something that seems silly when you realise what you did)
5. **DO** Study your mistakes using
    a. The mark scheme
    b. Your Survival kit if you completed yours
    c. Textbooks
    d. Videos
    e. etc.
6. **DO** Wait a day then repeat any question that you lost marks on using the strict timing (number of minutes = number of marks) and looking for your errors **before** you look at the mark scheme.
7. **DO** Repeat steps 3 and 4 over and over again until you are confident that if any of those questions are in your real exam, you will be able to do them quickly and accurately.

What has this process done to improve your chance of getting an improved grade in the real exam?

Do you have any more knowledge? YES. You kept going back to the harder questions until you could do them, so if these questions come up in your exam you, unlike some other students, can be confident you will know what to do ☺

Have you improved the accuracy of your algebra? YES. Not only have you practised finding errors during step one of the process, the fact that you have written them down and categorised them will help you to be more aware of the sorts of errors you make and this will help you, unlike other students, to avoid making them in the real exam ☺

Have you improved the speed of your algebra? YES. Every time you complete a paper (or question) in the correct time you are training yourself to be more comfortable working at the speed

needed in the exam. This means that, unlike some other students, you won't have the problem of running out of time ☺

The key to success is **honest self assessment** followed by **remedial action**.

Resits use the schedule above

Planning and preparation prevent poor performance

Summarise each topic into a five point hand!

Expensive Errors

1. Use a calculator which does integration and differentiation. Carry out this calculation on your calculator before starting the question so you have an aim. You can bring more than one calculator into the exam.

2. In many questions, it's possible to take your answer and substitute values back in to the question.

3. Do some questions again. Pick the hardest question or one with most algebraic manipulation. Don't cross out either answer: your best answer counts.

4. Circle or highlight key phrases in questions. e.g. "3 decimal places", "Hence", "Exact Answer", "Simplified Fraction" If a question asks you to "Write Down" an answer, this normally means there's just one mark. Don't spend ages on this – there must be a quick way.

5. Read the question after you've finished the answer to check you've done what it asks you to.

6. Don't spend too long on one question. Keep a close eye on the time. Put a watch on your desk rather than keep looking at the clock on the wall. Make sure you know how many marks for each question and aim for a minute per mark.

7. Beware of taking shortcuts with your working. It doesn't take that long to write out an intermediate step.

   e.g. $x^2 + 9x + 4 = 2(x - 4)$

   $\therefore x^2 + 7x - 4 = 0$

8. Avoid basic arithmetic and algebraic errors.
   e.g. $5-(2-x)=3-x$, $3^2+5=11$, $2+5(-1)^3=7$

9. Learn the formulae.

10. If you're asked to "Prove" or "Show" something, the last line in your working should state the answer. It's not just enough to write "As required" or "Q.E.D." – you must write out the statement at the end.

(a) Show that the x-coordinate of A satisfies the equation $x=\frac{\ln(20-x)}{\ln 2}-1$.	$x=\frac{\ln(20-x)}{\ln 2}-1$ A1*

11. Don't take any shortcuts with <u>proofs</u>. Write out every step. LHS≡
    or RHS≡
    ≡
    ≡ LHS

12. You may know that $\frac{tan\theta}{sec\theta}=sin\theta$ but if it's part of a proof, you must go through the intermediate step.

Formulae C3

These formulae are in the formula booklet but you should learn them anyway

$$e^{x\ln a} = a^x$$

$$\sin(A \pm B) = \sin A\cos B \pm \cos A\sin B$$
$$\cos(A \pm B) = \cos A\cos B \mp \sin A\sin B$$
$$\tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A\tan B} \qquad (A \pm B \neq (k + \tfrac{1}{2})\pi)$$

$$\sin A + \sin B = 2\sin\frac{A+B}{2}\cos\frac{A-B}{2} \qquad \sin A - \sin B = 2\cos\frac{A+B}{2}\sin\frac{A-B}{2}$$
$$\cos A + \cos B = 2\cos\frac{A+B}{2}\cos\frac{A-B}{2} \qquad \cos A - \cos B = -2\sin\frac{A+B}{2}\sin\frac{A-B}{2}$$

f(x)	f′(x)
tan kx	k sec^2 kx
sec x	sec x tan x
cot x	–cosec^2 x
cosec x	–cosec x cot x
$\frac{f(x)}{g(x)}$	$\frac{f'(x)g(x) - f(x)g'(x)}{(g(x))^2}$

These formula are NOT in the formula booklet so you MUST learn them.

$\sin^2 x + \cos^2 x = 1$ $\qquad 1 + \tan^2 x = \sec^2 x$ $\qquad 1 + \cot^2 x = cosec^2 x$

y	$\frac{dy}{dx}$
sin x	cos x
cos x	$-\sin$ x
tan x	$\sec^2$ x
cot x	$-$ cosec^{2}x
sec x	sec x tan x
cosec x	$-$ cosec x cot x
f(x) g(x)	f′(x)g(x) + f(x) g′(x)
e^x	e^x
ln x	$\frac{1}{x}$
a^x	$a^x \ln a$

The formulae for differentiating tan, cot, sec and cosec **are** in the formula booklet. I have included them here for the sake of completeness

$\sin 2A = 2 \sin A \cos A$
$\cos 2A = \cos^2 A - \sin^2 A$ $\qquad \cos 2A = 2\cos^2 A - 1$ $\qquad \cos 2A = 1 - 2\sin^2 A$
$\tan 2A = \frac{2\tan A}{1-\tan^2 A}$

You also need to know the graphs of y=arc sin x, y=arc cos x and y= arc tan x

Formulae C4

These formulae are in the formula booklet but you should learn them anyway

There is no time in the exam to trawl through the formula book!

f(x)	$\int \mathbf{f}(x)\ \mathbf{d}x$ *
$\sec^2 kx$	$\frac{1}{k}\tan kx + c$
$\tan x$	$\ln\lvert\sec x\rvert + c$
$\cot x$	$\ln\lvert\sin x\rvert + c$
$\operatorname{cosec} x$	$-\ln\lvert\operatorname{cosec} x + \cot x\rvert = \ln\lvert\tan(\frac{1}{2}x)\rvert + c$
$\sec x$	$\ln\lvert\sec x + \tan x\rvert = \ln\lvert\tan(\frac{1}{2}x + \frac{1}{4}\pi)\rvert + c$

Integration by Parts: $\int u\frac{dv}{dx}dx = uv - \int v\frac{du}{dx}dx$

***Refer to the flow chart for systematic integration**

These formula are NOT in the formula booklet so you MUST learn them.

The formula for the Binomial Expansion is on the C2 page of the formula booklet but you really **must** learn it for yourself. "Pattern of one, pattern of two" etc
The formula for the Trapezium Rule is also on the C2 page.

Partial Fractions: $\frac{ax+b}{(x-a)(x-b)} = \frac{A}{x-a} + \frac{B}{x-b}$ $\frac{ax+b}{(x-a)(x-b)^2} = \frac{A}{x-a} + \frac{B}{x-b} + \frac{C}{(x-b)^2}$

If the degree of the numerator is greater than or equal to the degree of the denominator, you must divide before turning into partial fractions as the fraction is improper

f(x)	$\int \mathbf{f}(x)\ \mathbf{d}x$	
$\sin^2 x$	$\frac{1}{2}x - \frac{1}{4}\sin 2x + c$	(use a formula for cos 2x)
$\cos^2 x$	$\frac{1}{2}x + \frac{1}{4}\sin 2x + c$	(use another formula for cos 2x)
$\tan^2 x$	$\tan x - x + c$	(use $1 + \tan^2 x = \sec^2 x$)
ln x	x ln x - x	(use integration by parts)
$\frac{f'(x)}{f(x)}$	$ln\lvert f(x)\rvert + c$	

Vectors

The equation of a straight line is **r** = **a** + λ**b** where **a** is a vector from the origin to the line and **b** is a vector contained within the line (i.e. the direction of the line)
The dot product of two vectors **a** and **b** is **a**.**b** = |**a**||**b**| cos θ, where θ is the angle between the lines.
If two lines are perpendicular, their dot product is zero.

Volume of solid of revolution is $V = \int \pi y^2 dx$ Parametric $V = \int \pi y^2 \left(\frac{dx}{dt}\right) dt$

It's often forgotten that the Area under a Curve is $A = \int y\,dx$ Parametric $A = \int y \left(\frac{dx}{dt}\right) dt$

Formulae M2

These formula are in the formula booklet but you should learn them anyway

Centres of mass for uniform bodies:

Triangular lamina $\frac{2}{3}$ along the median from the vertex (similar triangles along the side)

Circular arc, radius r, angle at centre 2α: $\frac{2rsin\alpha}{\alpha}$ from centre

Sector of circle, radius r, angle at centre 2α: $\frac{2rsin\alpha}{3\alpha}$ from centre

These formula are NOT in the formula booklet so you MUST learn them.

suvat (obviously):

$s = ut + \frac{1}{2}at^2; \quad v = u + at; \quad v^2 = u^2 + 2as; \quad s = \frac{u+v}{2}t; \quad s = vt - \frac{1}{2}at^2$

$\boldsymbol{a} = \frac{d}{dt}(\boldsymbol{v}); \quad \boldsymbol{v} = \frac{d}{dt}(\boldsymbol{r})$

Centre of Mass

Particles: If a system consists of n particles: mass m_1 with position vector r_1, etc then $\sum m_i \mathbf{r}_i = \bar{r} \sum m_i$, where $\bar{r}$ is the position vector of the centre of mass.

Laminas: If the co-ordinates of the three vertices of a uniform triangular lamina are (x_1, y_1), (x_2, y_2) and (x_3, y_3) then the centre of mass is at $(\frac{x_1+x_2+x_3}{3}, \frac{y_1+y_2+y_3}{3})$

Frameworks: Take the centre of mass of each section of the framework in the middle of each wire

Work, Energy, Power

INPUT = OUTPUT

Work done by a force + energy at the start = Work done against a resisitve force + energy at end

Work done = Force x distance

Potential Energy = mgh

Kinetic Energy = $\frac{1}{2}mv^2$

Force provided by an engine working is P/v Power /Velocity units: watts/ metres per second

Formulae Test Yourself: do you know these?

$\sin^2 x + \cos^2 x = 1$

$1 + \tan^2 x = \sec^2 x$

$1 + \cot^2 \mathrm{x} = \mathrm{cosec}^2 \mathrm{x}$

$\frac{\mathrm{d}}{\mathrm{dx}}(\sin \mathrm{x}) = \cos \mathrm{x}$

$\frac{\mathrm{d}}{\mathrm{dx}}(\cos \mathrm{x}) = -\sin \mathrm{x}$

$\frac{\mathrm{d}}{\mathrm{dx}}(\tan \mathrm{x}) = \sec^2 \mathrm{x}$

$\frac{\mathrm{d}}{\mathrm{dx}}(\cot \mathrm{x}) = -\mathrm{cosec}^2 \mathrm{x}$

$\frac{\mathrm{d}}{\mathrm{dx}}(\sec \mathrm{x}) = \sec \mathrm{x} \tan \mathrm{x}$

$\frac{\mathrm{d}}{\mathrm{dx}}(\mathrm{cosec\ x}) = -\mathrm{cosec\ x} \cot \mathrm{x}$

$\frac{\mathrm{d}}{\mathrm{dx}}(\mathrm{e}^{\mathrm{x}}) = \mathrm{e}^{\mathrm{x}}$

$\frac{\mathrm{d}}{\mathrm{dx}}(\mathrm{f(x)\ g(x)}) = \mathrm{f}'(\mathrm{x})\mathrm{g(x)} + \mathrm{f(x)\ g}'(\mathrm{x})$

$\frac{\mathrm{d}}{\mathrm{dx}}(\ln \mathrm{x}) = \frac{1}{\mathrm{x}}$

$\frac{\mathrm{d}}{\mathrm{dx}}(\mathrm{a}^{\mathrm{x}}) = \mathrm{a}^{\mathrm{x}} \ln \mathrm{a}$

$\sin 2\mathrm{A} = 2 \sin \mathrm{A} \cos \mathrm{A}$

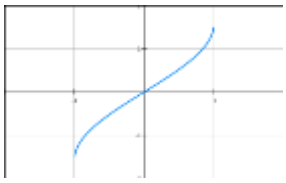
$\cos 2\mathrm{A} = \cos^2 \mathrm{A} - \sin^2 \mathrm{A}$

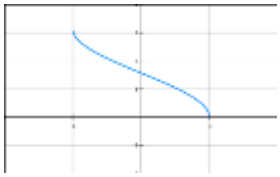
$\cos 2\mathrm{A} = 2 \cos^2 \mathrm{A} - 1$

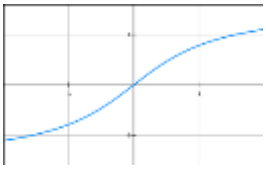
$\cos 2\mathrm{A} = 1 - 2 \sin^2 \mathrm{A}$

$\tan 2\mathrm{A} = \frac{2 \tan \mathrm{A}}{1 - \tan^2 \mathrm{A}}$

y=arc sin x, y=arc cos x y= arc tan x







$$\int u \frac{\mathrm{d}v}{\mathrm{d}x} \mathrm{d}x = uv - \int v \frac{\mathrm{d}u}{\mathrm{d}x} \mathrm{d}x$$

$\int \cos^2 \mathrm{x}\ \mathrm{dx} = \frac{1}{2}\mathrm{x} + \frac{1}{4}\sin 2\mathrm{x} + \mathrm{c}$

$\int \sin^2 \mathrm{x}\ \mathrm{dx} = \frac{1}{2}\mathrm{x} - \frac{1}{4}\sin 2\mathrm{x} + \mathrm{c}$

$\int \ln \mathrm{x}\ \mathrm{dx} = \mathrm{x} \ln \mathrm{x} - \mathrm{x}$

$\int \frac{\mathrm{f}'(\mathrm{x})}{\mathrm{f(x)}}\ \mathrm{dx} = \ln|f(x)| + c$

$\int \frac{1}{x}\ \mathrm{dx} = \ln |\mathrm{x}| + \mathrm{c}$

$\int \frac{1}{x^2}\ \mathrm{dx} = -\frac{1}{x} + c + \mathrm{c}$

The dot product of two vectors **a** and **b** is **a**.**b** = |**a**||**b**| cos θ, where θ is the angle between the lines.
If two lines are perpendicular, their dot product is zero.

Volume of Solid Of Revolution, $V = \int \pi y^2 dx$
Area under a Curve, A = $\int y\, dx$

Work done = Fd

Potential Energy = mgh

Kinetic Energy = $\frac{1}{2}mv^2$

Power = Fv

UMS

		C3						C4					
	A*	A	B	C	D	E		A*	A	B	C	D	E
Year/UMS	**90**	**80**	**70**	**60**	**50**	**40**		**90**	**80**	**70**	**60**	**50**	**40**
Sum 10	69	62	55	48	41	34		68	60	52	44	37	30
Jan 11	68	61	53	45	38	31		72	69	61	53	46	39
Sum 11	70	65	58	51	44	37		68	61	53	46	39	32
Jan 12	70	65	58	51	45	39		70	65	58	51	45	39
Sum 12	70	64	57	51	45	39		69	63	56	49	43	37
Jan 13	69	62	56	50	45	40		68	61	54	47	41	35
Sum 13	63	50	43	36	30	24		68	61	53	46	39	32
Sum 13 (R)	68	61	55	50	45	40		66	57	49	41	34	27
Sum 14	68	60	54	48	42	36		67	59	52	46	40	34
Sum 14 (R)	68	60	54	48	42	36		68	60	53	47	41	35
Sum 15	68	59	53	47	41	35		69	62	56	50	44	39
Sum 16	68	59	53	47	42	37		70	65	58	51	44	38

		M2				
	A*	A	B	C	D	E
Year/UMS	**90**	**80**	**70**	**60**	**50**	**40**
Sum 10	68	61	54	47	40	34
Jan 11	69	62	55	48	41	35
Sum 11	72	68	61	54	47	40
Jan 12	72	68	61	54	47	41
Sum 12	66	57	50	44	38	32
Jan 13	70	64	57	50	43	37
Sum 13	67	58	51	44	38	32
Sum 13 (R)	65	55	48	41	35	29
Sum 14	70	64	56	48	40	33
Sum 14 (R)	69	63	55	47	40	33
Sum 15	70	64	57	50	43	37
Sum 16	69	62	54	47	40	33

This table allows you to convert your mark out of 75 into a UMS (Uniform Mark Scale). It is the UMS that determines your grade. This takes into consideration that some papers are harder than others. Papers with high UMS numbers are easier than papers with low UMS numbers. You can see that the C3 paper for Summer 2013 was a hard paper (50/75 = grade A) but the C4 paper for January 2011 was an easy paper (69/75 = grade A). Would you prefer a hard paper or an easy paper?

Example: Look at the C3 Summer 2010 paper UMS numbers. If you got 55 out of 75, that converts to a UMS of 70 which is a B. If you got 57 out of 75 that's a little bit over the threshold for a B so the UMS is probably about 73.

Remember that all six modules combine to get you your final grade. Add together your six modules and use this table to convert

480 - 600 = A 420 – 479 = B 360 -419 = C 300 - 359 = D 240 - 299 = E

In order to get a grade A* you need to satisfy BOTH of these conditions:

1) Your total UMS has to be 480 or more
2) Your total UMS for C3 + C4 has to be 180 or more

Use this table to work out what average mark you need in your three A2 papers to get each grade.

Total AS UMS	A	B	C	D	E
x	(480 – x) / 3	(420 – x) /3	(360 – x)/3	(300 – x)/3	(240 – x)/3

A Level Maths Exam Practice Chart (C3, C4 & M2)

A*	97-																																			
	94-96																																			
	90-93																																			
A	87-89																																			
	84-86																																			
	80-83																																			
B	77-79																																			
	74-76																																			
	70-73																																			
C	67-69																																			
	64-66																																			
	60-63																																			
D	57-59																																			
	54-56																																			
	50-53																																			
E	47-49																																			
	44-46																																			
	40-43																																			
U	31-39																																			
	16-30																																			
	0-15																																			
Paper		C3	C3	C3	C3	C3	C3	C3	C3	C3	C3	C3	C3	C4	C4	C4	C4	C4	C4	C4	C4	C4	C4	C4	C4	M2	M2	M2	M2	M2	M2	M2	M2	M2	M2	M2
Jan/Sum																																				
Year																																				