Exam board / website: Edexcel - Mathematics
http://www.edexcel.com/quals/gce/gce08/maths

COULD YOU ANSWER THESE A-LEVEL QUESTIONS? (OR EVEN UNDERSTAND THEM!)

1: Write down the exact value of 7^{-2}

2: Simplify: $\frac{(x\sqrt{x})^3}{2x^4}$

3: Solve the simultaneous equations:

$y = x^2 - 3x + 2$

$y = 3x - 7$

4: Six hens are observed over a period of 20 days and the number of eggs laid each day are shown in the table below:

■ Show that the mean number of eggs per day is five

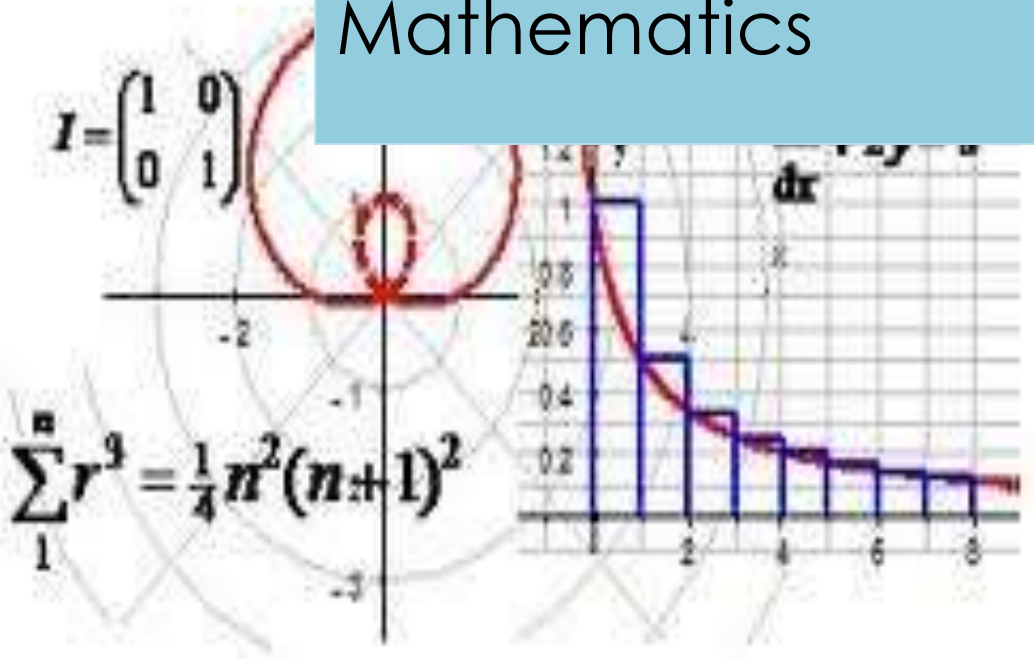
Number of eggs	3	4	5	6
Number of days	2	2	10	6

Answers: **1:** $\frac{1}{49}$ **2:** $\frac{1}{2}\sqrt{x}$ **3:** $y = 2$ $x = 3$ **4:** Mean = $\frac{3\times2 + 4\times2 + 5\times10 + 6\times6}{20} = 5$ Source: OCR

Hillcrest Sixth Form

THE OAKS Sixth Form College

Mathematics



Mathematics

What does studying Mathematics involve?
Mathematics at both AS and A level is linear with100% assessment of pure and applied topics at the end of the course.

- Pure Mathematics, 2/3 of the syllabus, includes learning already met at GCSE level such as trigonometry, geometry and algebra. These topics are taken to a more advanced level and the discipline of calculus is also introduced.

Applied mathematics – Statistics and Mechanics, form the other 1/3 of the syllabus.

- Statistics is a study of the collection, organisation, presentation, and analysis of data from real life problems.
- Mechanics looks at the more physical side of Mathematics including forces and projectiles

What skills will I develop?
Studies have also shown that people with Mathematics A Level also tend to earn more on average than people without it. This is because the skills you develop include problem solving, logic and analysing situations. Add in the improvements to your basic numeracy skills and that bit of creativity needed to solve mathematical problems and you've got yourself a set of skills which make you more desirable for almost any job!

What subjects complement Mathematics?
Scientific subjects are the perfect complement to Mathematics.
Many students studying Mathematics will combine their studies with subjects from Humanities and Social Sciences such as History, Geography, Sociology and Psychology.

Where will the subject take me?
Both universities and employers hold an A level qualification in Mathematics in high regard and it can lead to a wide variety of options when choosing higher education courses. Typical examples include Medicine, Engineering, Law, Business, Social and Political Sciences, Natural Sciences, and, of course, Mathematics itself.

Entry requirements:
Students are required to have gained a GCSE Mathematics grade 7 or above in order to study GCE Mathematics. This is higher than some subjects because a thorough understanding of all GCSE topics is essential for success at A level.

Course content:
Pure Mathematics comprising: Proof, Algebra and functions, Coordinate geometry in the (x,y) plane, Sequences and series, Trigonometry, Exponentials and logarithms, Differentiation, Integration, Vectors and Numerical methods

Statistics and Mechanics comprising: Statistical sampling, Data presentation and interpretation, Probability, Statistical distributions, Statistical hypothesis testing, Quantities and units in mechanics, Kinematics, Forces and Newton's laws and Moments

Assessment:

- 3 examination papers, lasting 2 hours each
- Papers 1&2, Pure Mathematics
- Paper 3, Applied Mathematics

Calculators are allowed in all examinations

Suggested reading material:
Plymouth University has an excellent website called "Step Up to A level Maths". This a free online at:
http://www.cimt.org.uk/projects/mepres/step-up/index.htm

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