Answers
Always think if each numerical answer is reasonable.

Getting stuck!

If you get stuck on part of a question - don't give up!
Try the next part - you may have to use a result that is given in the part you have just left or even an answer that you think is wrong. The exam marker will be able to give you credit for the part you are doing independently from the part you are unhappy about.

Remember - show all your working - some marks are given for the methods you use and a wrong answer can gain some marks!

Graphs

If you are asked to sketch a graph:
- use your graphic calculator to help you
- label the axes

show clearly any significant features such as asymptotes and turning points.

Good luck!

Applying Mathematics

Tackling the Exam

Paper 2

Preparation

Make sure you revise the material for the FSMQ Working with algebraic & graphical techniques. You may be tested on this in this paper.

Also revise two new topics:
- Simulations
- Recurrence relations.

Simulations
- Make sure you know how to assign randomly generated integers to simulate events based on probabilities.
- Think about how a simulation might be improved by going back to the assumptions that were made in setting it up.
- Think about how the results of a simulation could be more useful by perhaps running it for longer or for a greater number of times.

Recurrence relations

- Make sure that you know what the first / starting / initial value is.
- Record successive values systematically - perhaps in a table.
- If you want your final answer correct to 3 significant figures you will need to work with intermediate values that are more accurate (to at least 4 sig figs).

Algebra & graphs

Make sure you are familiar with the main functions that you should know and their graphs. You should know the effect of varying parameters of a function - and what this means in terms of the real situation it models.

For example:

- $y = mx + c$ — m gives the gradient or rate of change, and c the intercept on the vertical axis (when $x = 0$, often the initial value)
- $y = ke^{mx}$ — k gives the intercept on the vertical axis (when $x = 0$, often the initial value), m affects the rate of growth (if m is negative this gives exponential decay)
- $y = A \sin (mx + c)$ — A gives the amplitude of the periodic function, m affects the frequency of the wave (and consequently its period and wave length), c affects the phase-shift - the starting point of the wave.

Always think about what your maths is telling you about the real situation it models.

The Exam

Timing

You have 1½ hours. There are 70 marks available.

You could go through the paper and write by each question how long you should allow to do it.

Allow about 1 minute per mark - this should leave you some time at the beginning of the exam to have a look through the questions and some time at the end to check your work.

1. Before you start working look through the questions. Choose to do them in the order that suits you best - try to choose to do topics with which you are most comfortable first. - You do not have to answer questions in the order they were set.

2. Try to stick to the timing of one mark per minute.

IMPORTANT

If a question is taking you a lot longer than the marks suggest it should - STOP. Go on to another question. You can come back to the question later - if you have time.

3. You should have some time left at the end - after you have attempted all of the questions. Go back and try to finish any questions you left.

4. Check your answers to questions if you have finished everything.

Never sit doing nothing!