Revision Session – You can do this!

Ways to prove something

If you have 2 statements P and Q:
- By direct proof (P $\Rightarrow$ Q)
  - "Imma prove it!"
- By contrapositive (Not Q $\Rightarrow$ Not P)
  - "If it was P then it would be Q, so if it's not Q then it can't be P!"
- By substitution ((P $\Leftrightarrow$ R) $\Rightarrow$ Q)
  - "I'll swap P for R since they are equivalent!"

Some things to keep in mind
- If it's 'if and only if' then you **have** to prove both directions
- If the question is 'prove or find a counter example', unless you're sure it is right, maybe try finding a counterexample first
- Write down explanations of what you're doing and not just formulae
- If you don't know what to do or are unsure of where to go:
  - write down the definitions of EVERYTHING you're given in the question
  - write down the definition of what you want to arrive at

Counterexamples

- When finding counterexamples: don't go higher than 0 and 1 (usually that's enough)
- For matrices try
  - The Identity Matrix
  - The Zero Matrix
  - Upper/Lower Triangular Matrix
  - Diagonal Matrix
  - Symmetric Matrix
  - Diagonal without the bottom entry
- For vectors try
  - The Zero Vector
  - The Standard Basis

General exam tips

- Stay calm!
- Read the questions properly
- Remember your student card (otherwise you will have to fill out an annoying form)
- You don't need to do the questions in the order they are given!
- Go to where you will write the exam at least once before the exam so you know where it is and how long it'll take you to get there
- Don't forget the book or your calculator
- Make sure your notes are ready (annotations in the book, cheat sheets, etc)
- Write down what you're doing
  - Explanations
  - Write down all the steps (if you do something wrong arithmetically, the marker can see and still give you some points for the right idea)
  - Write down theorems etc you're using