MATH1012 Tutorial

Me/Facilitator: Owen

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About me:

Mathematics Honours Student.

Undergraduate at UWA with some coursework at the University of Melbourne & the National University of Singapore.

Just in case you don’t know:

1. Tutorials on Week n+1 are usually on Week n content.

   e.g. Tutorials in Week 3, are on Week 2 content.

2. Attendance/Tutorial Participation Contributes 5% of Overall Unit Mark

Expectations of the Class

This Class: Predominantly working on problems

Sometimes: A short summary or, a practice question.

- Please talk to me if you're confused.
- I want all of you to do well, (and feel pleased with what you have achieved).

Recommendations (First Half of the Content):

(Personal Recommendations)

3Blue1Brown (Essence of Linear Algebra):

Very good at developing the intuition of the meaning of underlying topics in the course.

Trefor Bazett (Linear Algebra):

Provides bite sized videos, the content taught in the playlist is a very close match to all the Linear Algebra content taught in MATH1012.

This Week!

Gaussian/Gaussian-Jordan Elimination:

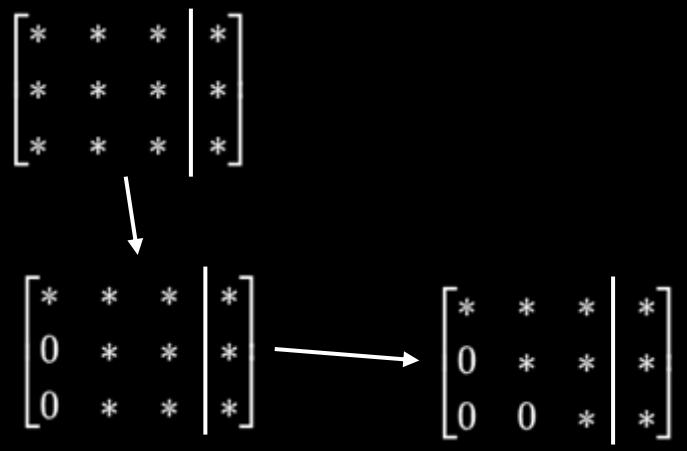
Quick reminders/tips:

REF

$$\left[\begin{array}{ccc|c} a & b & c & s \\ 0 & d & e & t \\ 0 & 0 & f & u \end{array}\right]$$

RREF

$$\left[\begin{array}{ccc|c} 1 & 0 & 0 & s \\ 0 & 1 & 0 & t \\ 0 & 0 & 1 & u \end{array}\right]$$



Infinite Solutions:

$$\left[\begin{array}{ccc|c} a & b & c & s \\ 0 & d & e & t \\ 0 & 0 & 0 & 0 \end{array}\right]$$

Pivots:

$$\left[\begin{array}{ccc|c} \boxed{1} & a & b & c & s \\ 0 & 0 & \boxed{1} & d & t \\ 0 & 0 & 0 & 0 & 0 \end{array}\right]$$

Pivot Variables

Free Variables

No Solutions /Inconsistent:

$$\left[\begin{array}{ccc|c} a & b & c & s \\ 0 & d & e & t \\ 0 & 0 & 0 & k \end{array}\right]$$

$(k \neq 0)$

Unique Solution:

$$\left[\begin{array}{ccc|c} a & b & c & s \\ 0 & d & e & t \\ 0 & 0 & h & k \end{array}\right]$$

$(h \neq 0)$

Homogenous: (Zeros for constant term).

Break – Electrical Engineering Application