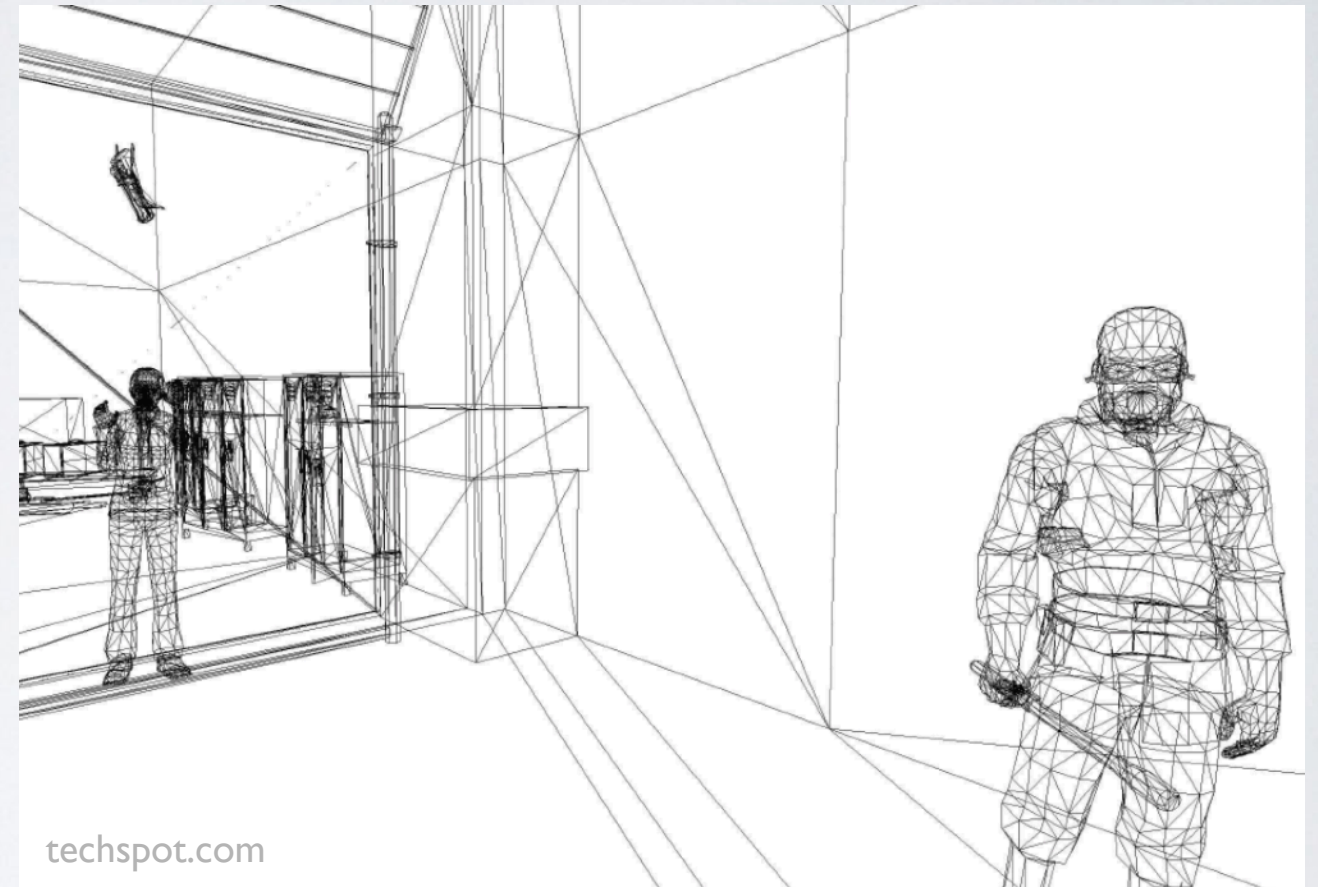
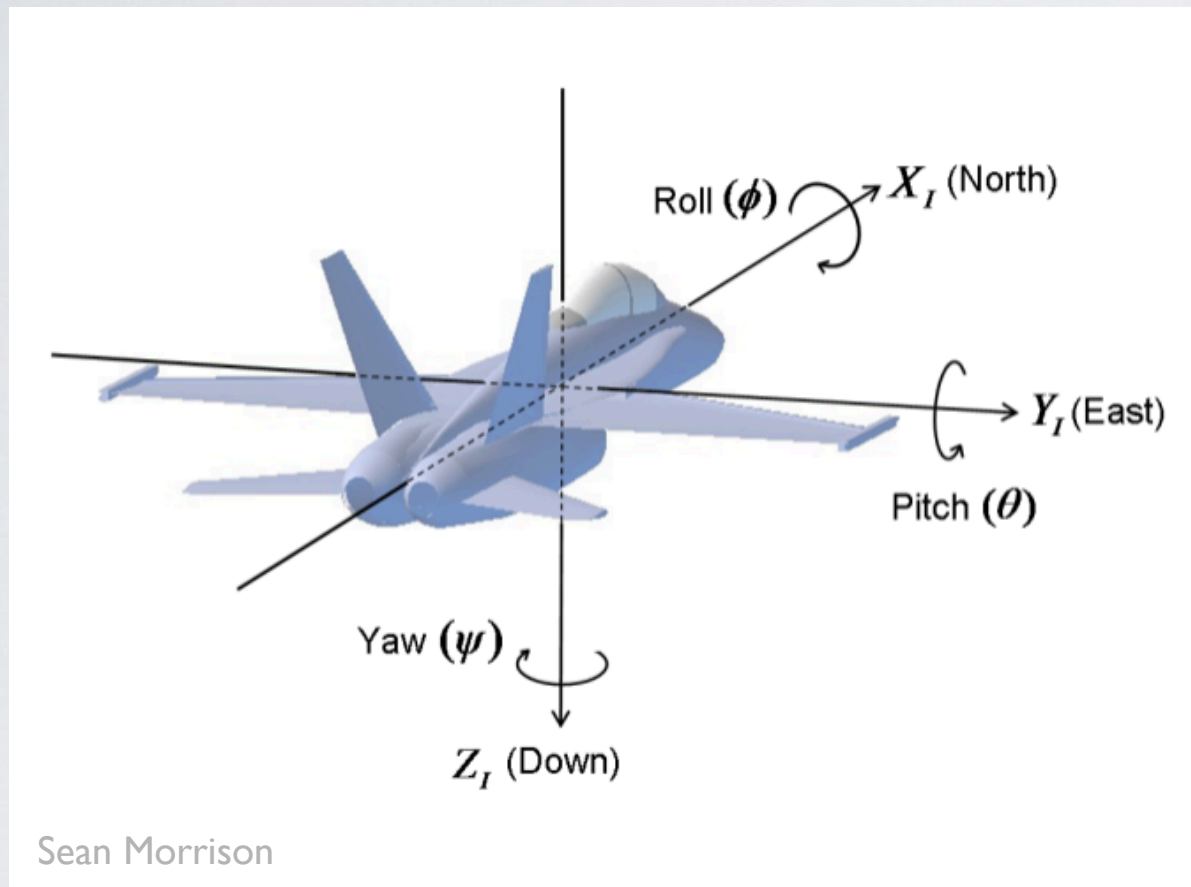


Week 2 - #2

Complex Numbers (III), Linear Algebra (I)



Today: Ch 2-3

Next Class: Ch 3

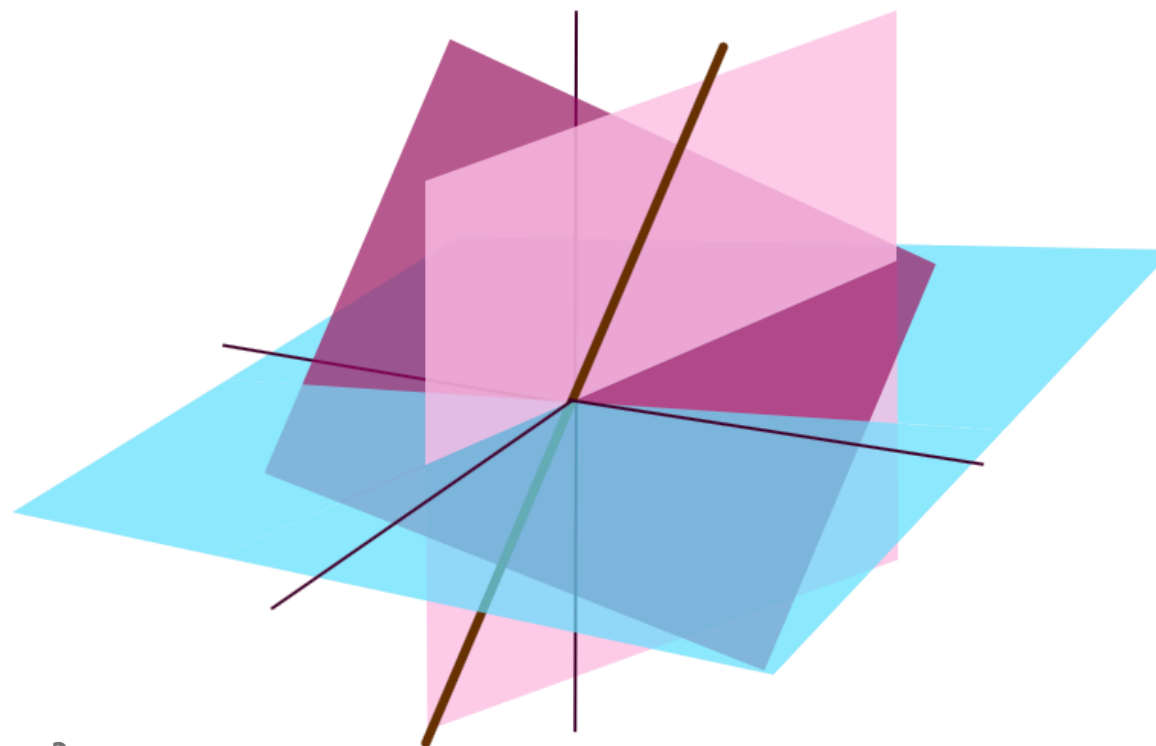
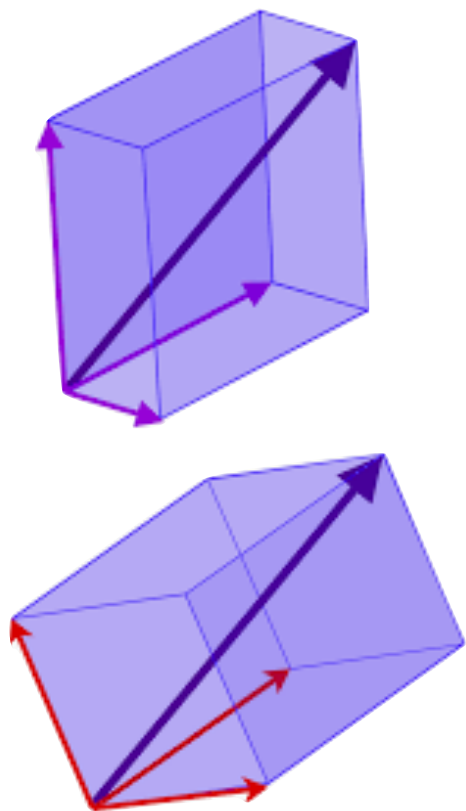
Ji-hoon Kim (Seoul National University)

Rudimentary Mathematical Methods of Physics (Fall 2025): Quiz #3

— [open book and open note, **but** no cellphone or laptop, drop it off as you leave the class] —

Please write down your name and student ID in the top right corner. (0.0 pt: no paper found with your name / 0.5 pt: paper found with your name and some answers / 1.0 pt: good answers)

1. Boas, Chapter 2, Section 11, Problem 11, using Eq.(11.3)
2. Refresh your memory about the “determinant” of a matrix and how to find it — from what you learned in your freshman Calculus. Then, Boas, Chapter 3, Section 3, Problem 1



w3resource.com



fighter jets in echelon formation

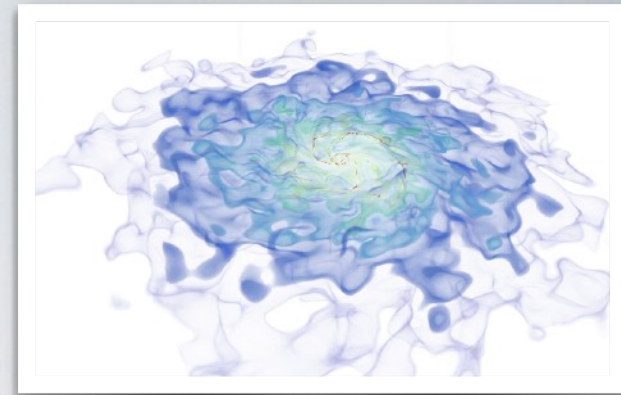
Rudimentary Mathematical Methods of Physics (Fall 2025): Suggested Problems in Chapter 3, Boas, 3rd ed.

The problems I suggest you to take a deeper look into include, but are not limited to, the following.
The class homework assignments will mainly be from this list.

- Section 02: Problems 8, 13, 14, 17, 18
- Section 03: Problems 2, 6, 9, 10, 13, 15
- Section 04: Problems 5, 6, 9, 21, 23
- Section 05: Problems 17, 21, 32, 36, 42
- Section 06: Problems 6, 7, 16, 18, 21, 29, 30
- Section 07: Problems 12, 27, 31, 34, 35
- Section 08: Problems 2, 10, 15, 16, 17, 24
- Section 09: Problems 3, 5, 10, 17, 19(c), 24, 25(a)(b)
- Section 10: Problems 4(c), 5(a), 7
- Section 11: Problems 9, 10, 19, 21, 31, 33, 42, 44, 50, 57, 60, 61
- Section 12: Problems 9 (for Problems 4, 7), 16, 21
- Section 13: Problems 1, 4, 7
- Section 14: Problems 13

Chapter 10, Sections 1-4

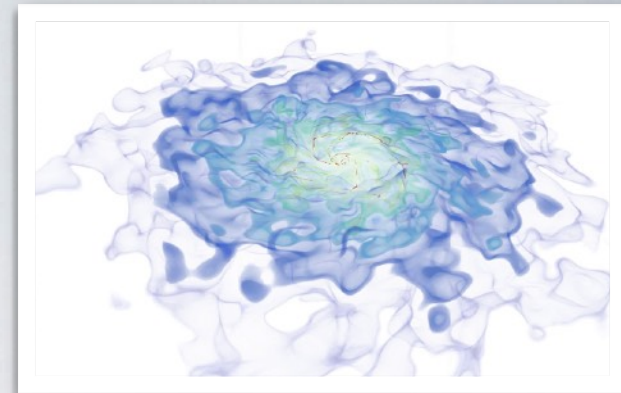
- Section 02: Problems 6
- Section 03: Problems 1, 2, 8
- Section 04: Problems 2, 6, 8



HW #1 will be posted!

(To be posted on jihoonkim.org, Due: **Sep. 19 (Fri), 23:00pm**,

Grader TA this time: 정은우, cewgenius@snu.ac.kr)



Row Reduction

Row Reduction / Solving A Set of Equations



row reduce {{1,-1,4,5}, {2,-3,8,4}, {1,-2,4,9}}



NATURAL LANGUAGE MATH INPUT

EXTENDED KEYBOARD EXAMPLES UPLOAD RANDOM

Input interpretation

row reduce

$$\begin{pmatrix} 1 & -1 & 4 & 5 \\ 2 & -3 & 8 & 4 \\ 1 & -2 & 4 & 9 \end{pmatrix}$$

Result

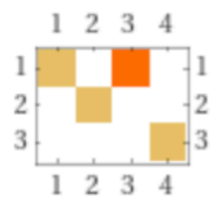
☒ Step-by-step solution

$$\begin{pmatrix} 1 & 0 & 4 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

Dimensions

3 (rows) $\times$ 4 (columns)

Matrix plot



Matrix rank

☒ Step-by-step solution

3

Nullity

☒ Step-by-step solution

1

Row Reduction / Solving A Set of Equations

 **WolframAlpha**[®] computational intelligence[™]

row reduce $\{\{1,-1,4,5\}, \{2,-3,8,4\}, \{1,-2,4,9\}\}$

 NATURAL LANGUAGE  MATH INPUT

EXTENDED KEYBOARD EXAMPLES UPLOAD RANDOM

Input interpretation

row reduce $\begin{pmatrix} 1 & -1 & 4 & 5 \\ 2 & -3 & 8 & 4 \\ 1 & -2 & 4 & 9 \end{pmatrix}$

 **WolframAlpha**[®] computational intelligence[™]

solve $x-y+4z=5, 2x-3y+8z=4, x-2y+4z=9$

 NATURAL LANGUAGE  MATH INPUT

EXTENDED KEYBOARD EXAMPLES UPLOAD RANDOM

Input interpretation

	$x - y + 4z = 5$
solve	$2x - 3y + 8z = 4$
	$x - 2y + 4z = 9$

Result

(no solutions exist)