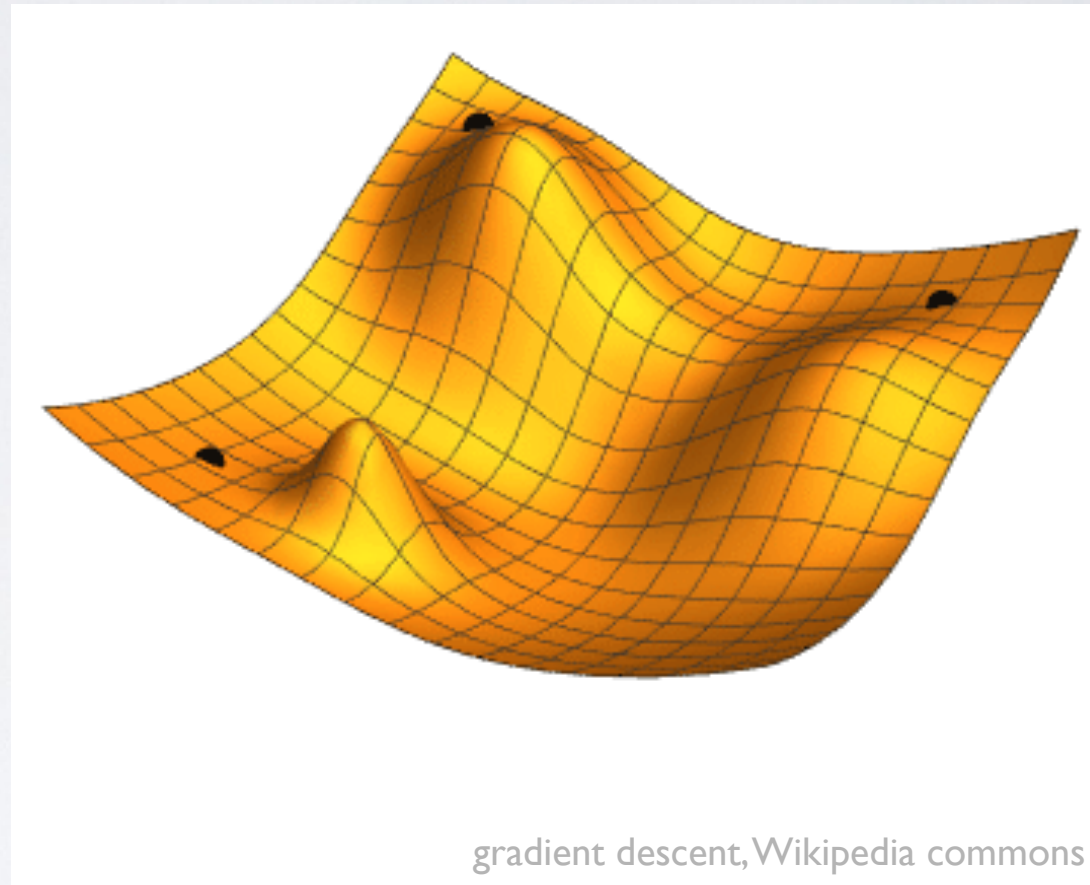
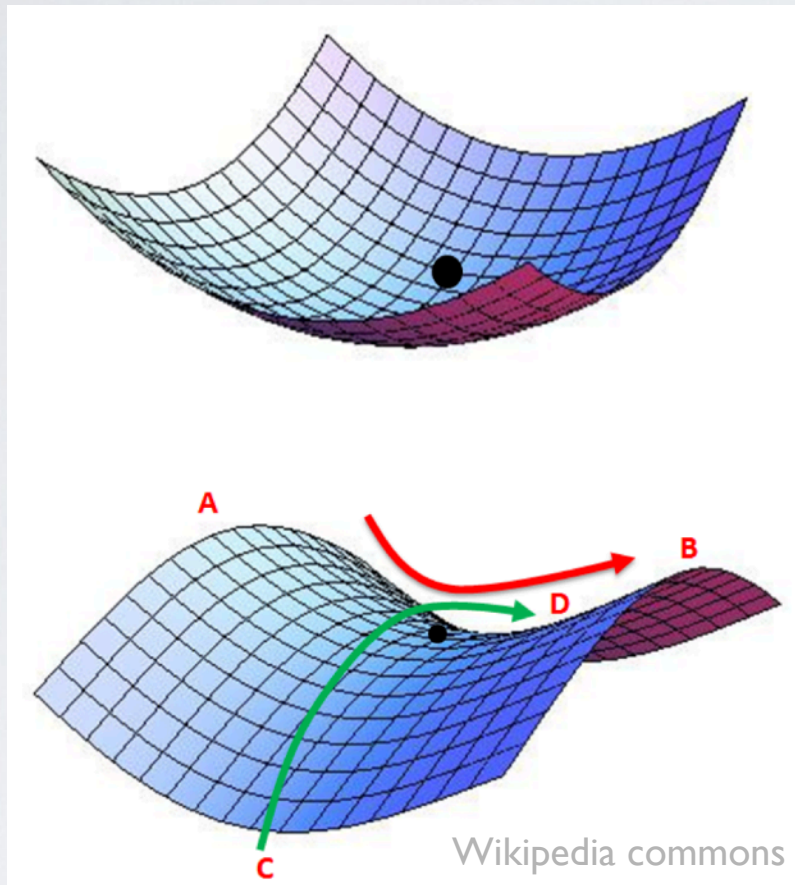


Week 8 - #1

Vector Analysis (III), Tensor Analysis (II)



Today: Ch 10.5, 10.7-10.9

Next Class: Ch 7

Ji-hoon Kim (Seoul National University)

Rudimentary Mathematical Methods of Physics (Fall 2025): Quiz #11

— [open book and open note, “and” 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. Explain in layman’s terms — as if you do to your friend in the College of Humanities — what a tensor is. Study and briefly explain how the “tensors” are used in machine learning. For example, the popular open source deep neural network platform by Google is called TensorFlow.

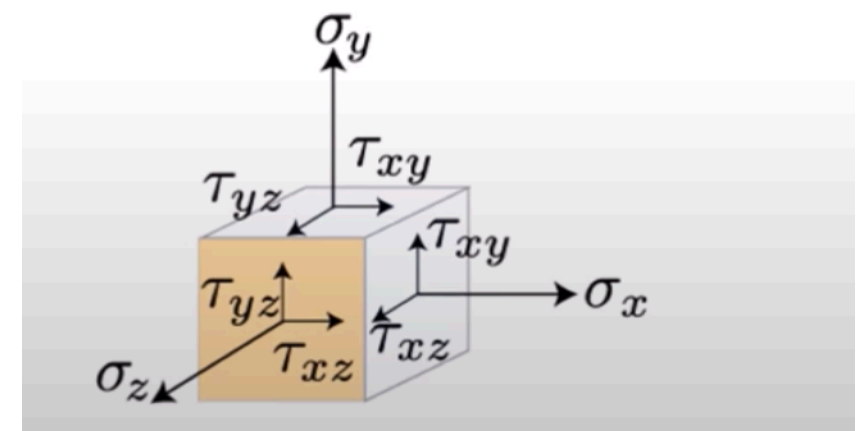
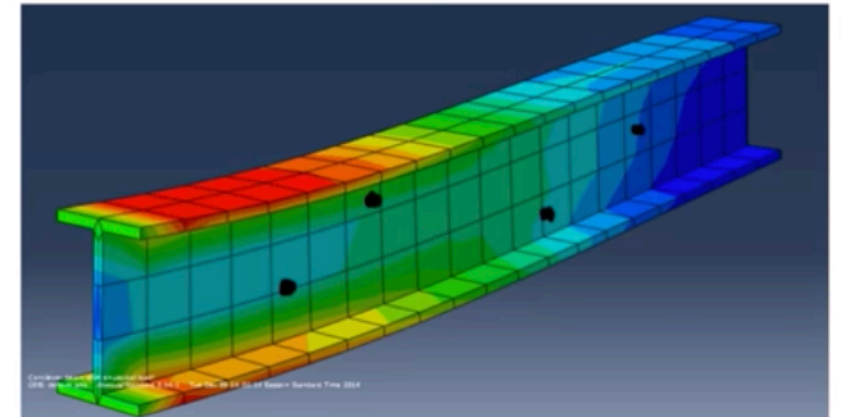
2. Boas, Chapter 10, Section 5, Problem 11



tensorflow.org



stress tensor, [youtube.com/watch?v=kGXrISF3WmA](https://www.youtube.com/watch?v=kGXrISF3WmA)



Rudimentary Mathematical Methods of Physics (Fall 2025): Suggested Problems in Chapter 6, 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 03: Problems 12, 13, 14, 16, 17
- Section 04: Problems 6, 9
- Section 06: Problems 8, 13, 14, 16
- Section 07: Problems 6, 7, 15, 16, 17
- Section 08: Problems 6, 14, 18, 19, 20
- Section 09: Problems 3, 4, 7, 8
- Section 10: Problems 6, 10, 12, 15, 16
- Section 11: Problems 8, 10, 12, 16, 17(b)(d)(e), 18
- Section 12: Problems 3, 16, 19

Chapter 10, Sections 5 & 7-9

- Section 05: Problems 5, 7, 10
- Section 08: Problems 6
- Section 09: Problems 2, 5

39 problems / 173 total
(Ch.10) 13 problems / 138 total

Rudimentary Mathematical Methods of Physics (Fall 2025): Suggested Problems in Chapter 7, 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 12, 17
- Section 03: Problems 8
- Section 04: Problems 1, 13, 16
- Section 05: Problems 1, 3, 4, 7, 9, 11
- Section 06: Problems 10, 12 (for Problem 5.7 and 5.9), 14, 15
- Section 07: Problems 7, 9, 11, 13
- Section 08: Problems 2, 14, 15(a)(b), 20
- Section 09: Problems 9, 10, 11, 19, 20, 23
- Section 10: Problems 2
- Section 11: Problems 6, 8
- Section 12: Problems 6, 9, 10, 15, 18, 21, 23, 26, 31, 35
- Section 13: Problems 4, 8, 14, 23