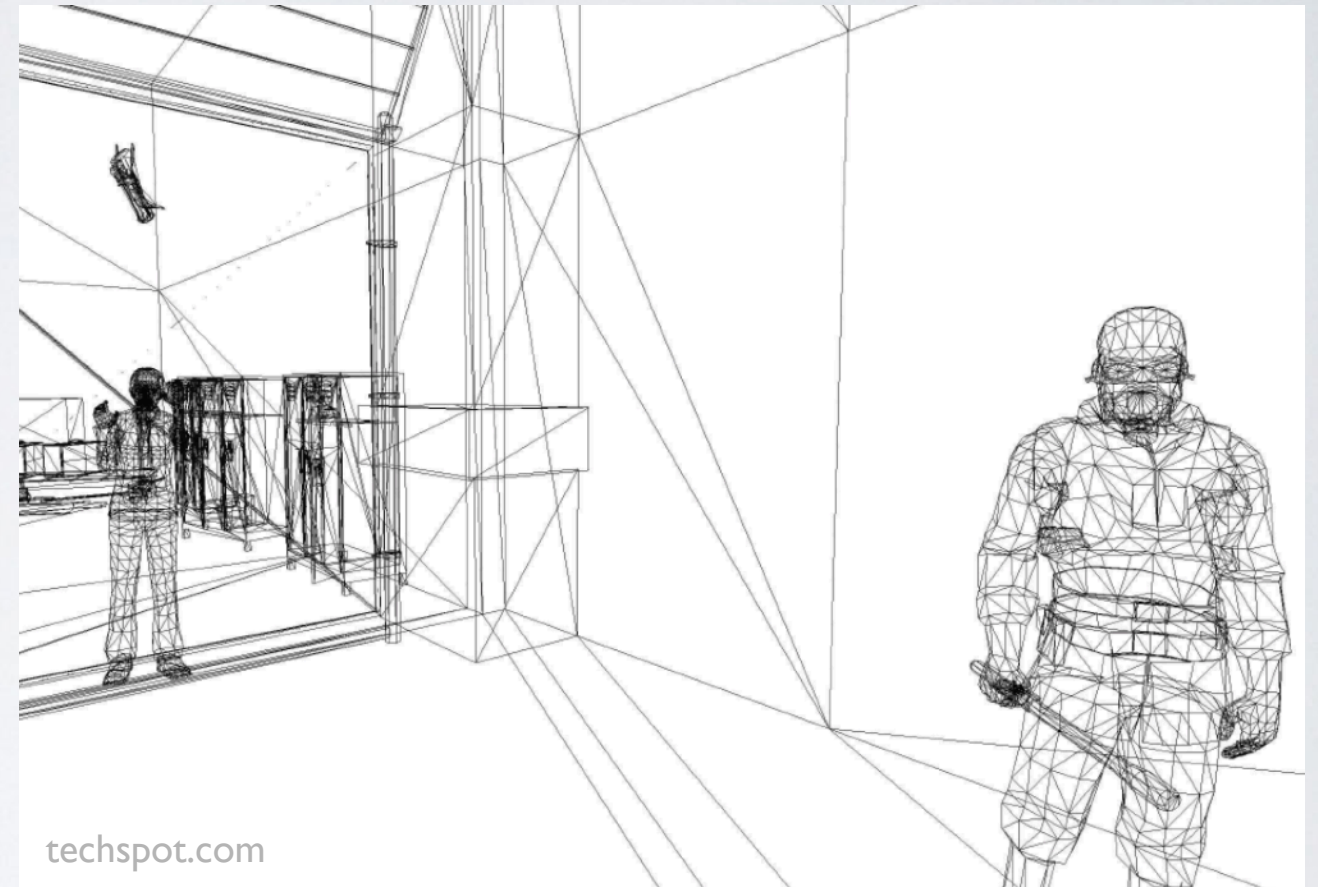
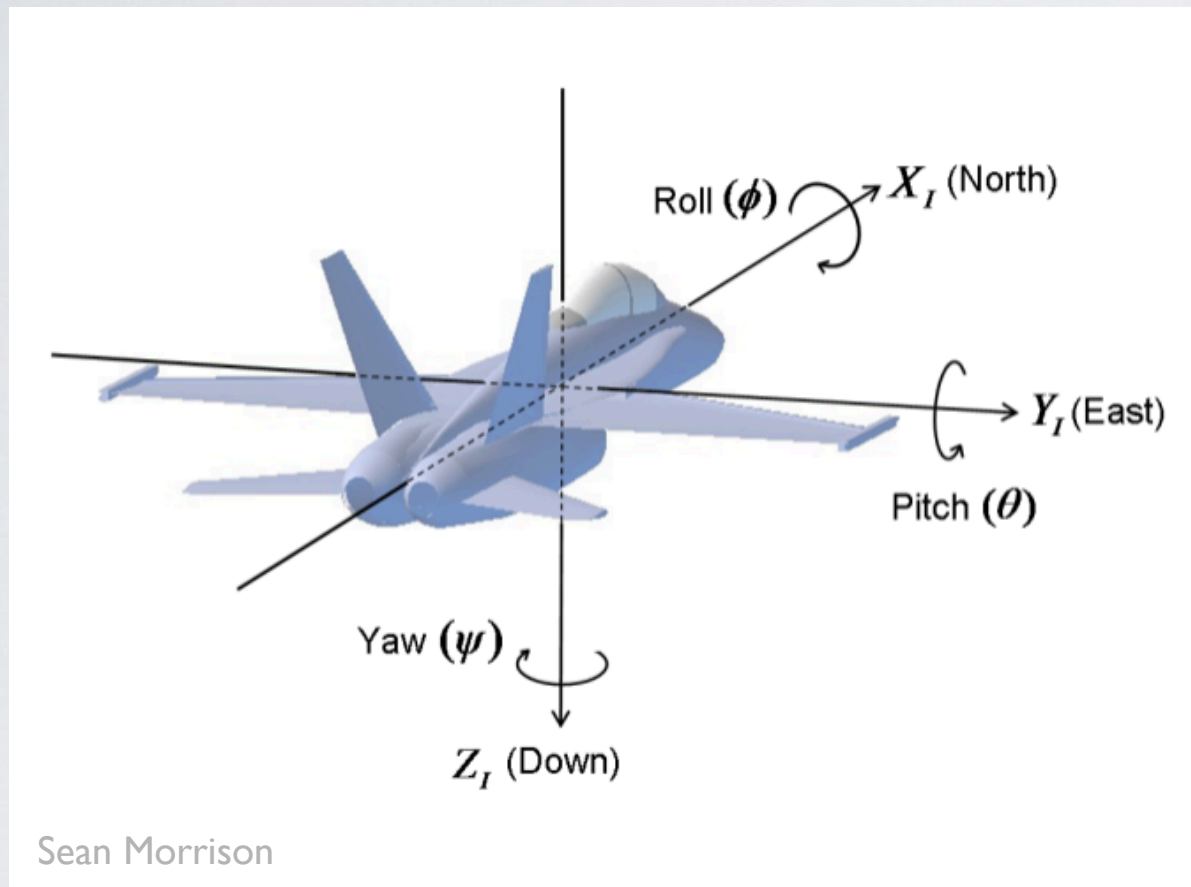


Week 4 - #1

Linear Algebra (IV)



Today: Ch 3

Next Class: Ch 3, 10.1-10.4

Ji-hoon Kim (Seoul National University)

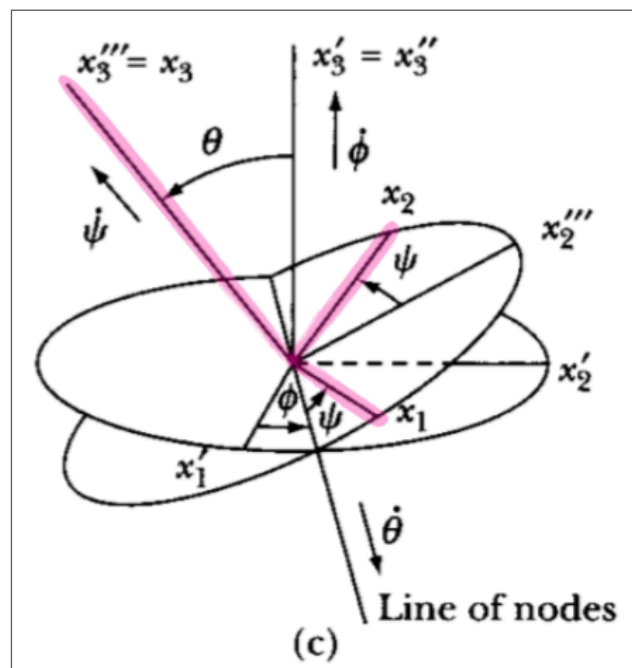
Rudimentary Mathematical Methods of Physics (Fall 2025): Quiz #5

— [open book and open note, “and” cellphone or laptop, drop it off as you leave the class] —

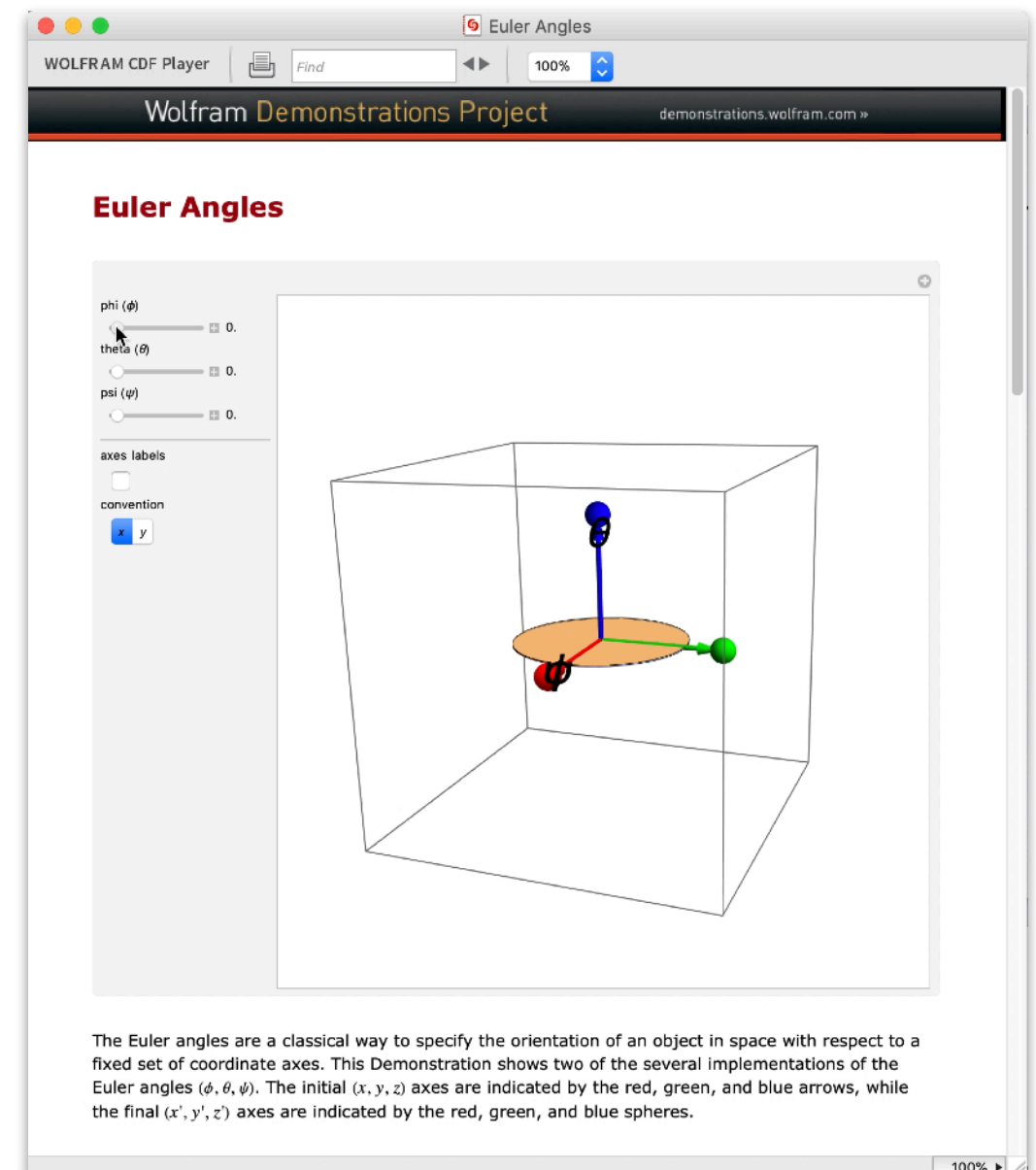
Please write down your name and student ID in the top right corner. (0.0 pt: no paper found with your name / 0.5 pt: paper found with your name and some answers / 1.0 pt: good answers)

1. Boas, Chapter 3, Section 8, Problem 25
2. Boas, Chapter 3, Section 10, Problem 5(b)
3. Define “conic section” that appears at the beginning of Boas Chapter 3, Section 12.

Thornton & Marion, Figure 11-9(c)



demonstrations.wolfram.com/
EulerAngles/



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

Rudimentary Mathematical Methods of Physics (Fall 2025): Suggested Problems in Chapter 4, Boas, 3rd ed.

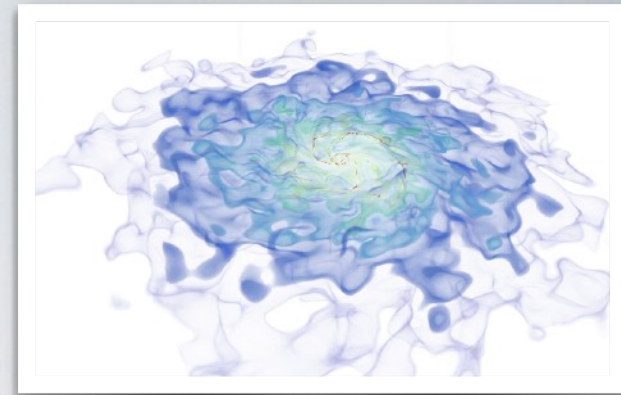
The problems I suggest you to take a deeper look into include, but are not limited to, the following.
The class homework assignments will mainly be from this list.

- Section 01: Problems 7, 8, 9, 15, 16
- Section 02: Problems 1, 2, 3
- Section 04: Problems 2, 3, 7, 15
- Section 05: Problems 1, 2, 6, 8
- Section 06: Problems 1, 4, 9
- Section 07: Problems 2, 4, 7, 10, 16, 25, 28
- Section 08: Problems 2, 8, 11, 13
- Section 09: Problems 2, 5, 9, 11
- Section 10: Problems 2, 5, 10, 14
- Section 11: Problems 1, 4, 6, 7, 8
- Section 12: Problems 2, 5, 10, 13, 16, 19
- Section 13: Problems 6, 9, 16, 27, 29

Rudimentary Mathematical Methods of Physics (Fall 2025): Suggested Problems in Chapter 5, Boas, 3rd ed.

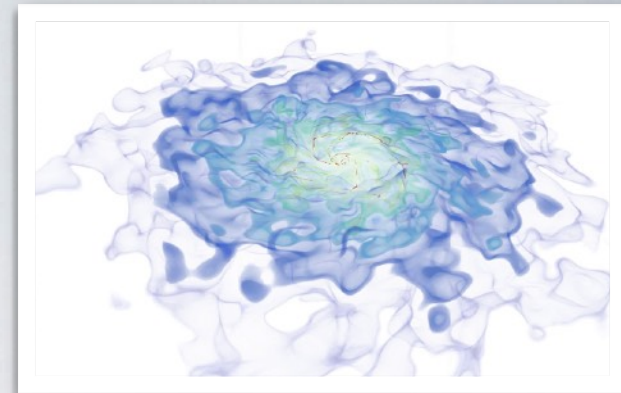
The problems I suggest you to take a deeper look into include, but are not limited to, the following.
The class homework assignments will mainly be from this list.

- Section 01: Problems 2, 4, 5
- Section 02: Problems 3, 5, 9, 11, 13, 16, 20, 22, 26, 39, 41
- Section 03: Problems 6, 12, 13, 17, 18, 19, 20, 21, 25
- Section 04: Problems 2, 4, 7, 14, 16, 19, 20
- Section 05: Problems 1, 5
- Section 06: Problems 4, 6, 11, 18, 23, 25, 27



**HW #1 score and the grading
criteria will be posted soon!**

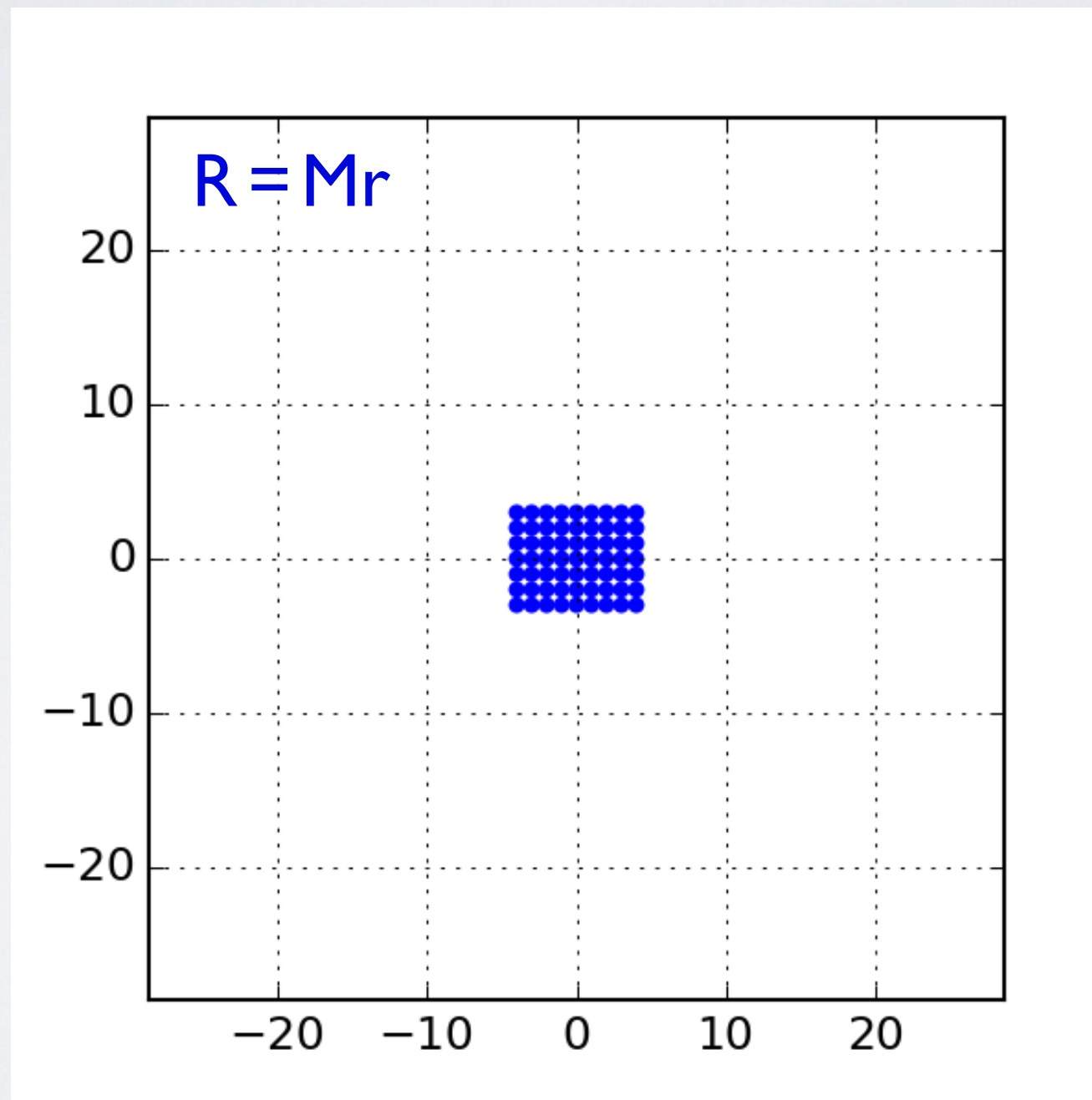
(Grader TA this time: 정은우, cewgenius@snu.ac.kr)



Meaning of Diagonalization

Meaning of Diagonalization (Ch 3.1 I)

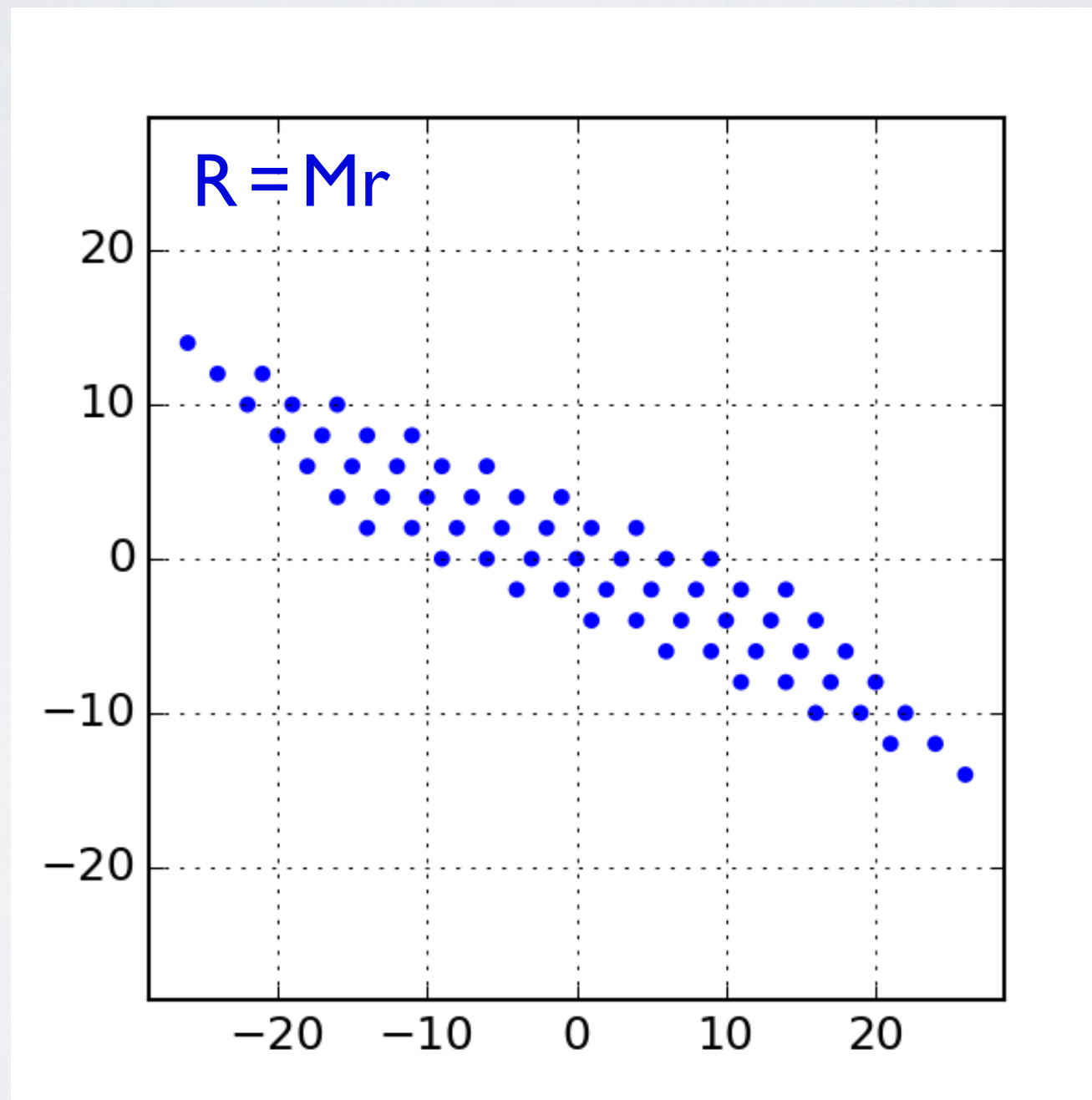
- Matrix C **changes** the old set of coordinate axes (x, y) to a new, convenient set of coordinate axes (x', y') .



modified from dododas.github.io/linear-algebra-with-python/posts/16-12-29-2d-transformations.html

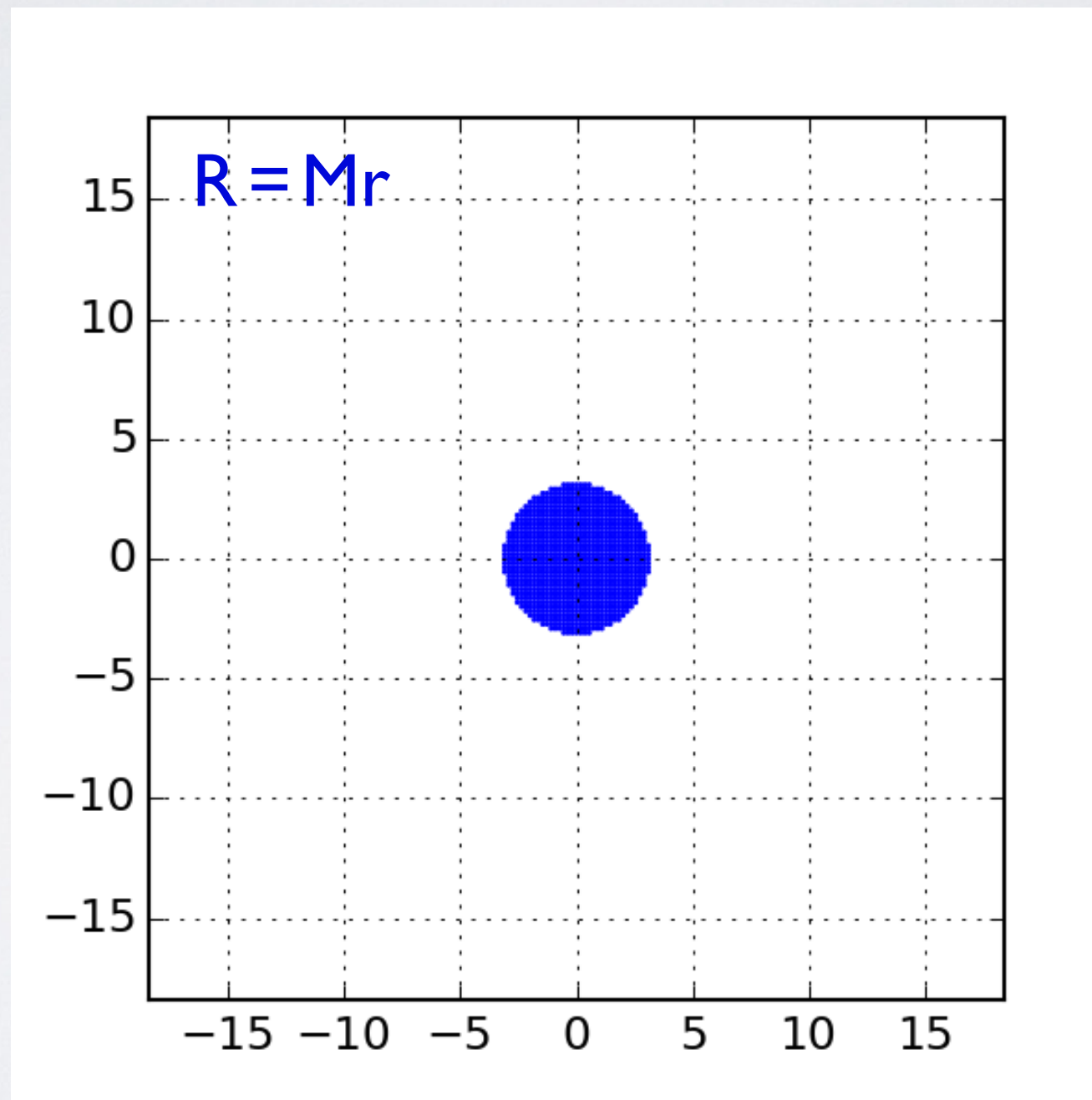
Meaning of Diagonalization (Ch 3.1 I)

- Matrix C **changes** the old set of coordinate axes (x, y) to a new, convenient set of coordinate axes (x', y') .



Meaning of Diagonalization (Ch 3.1 I)

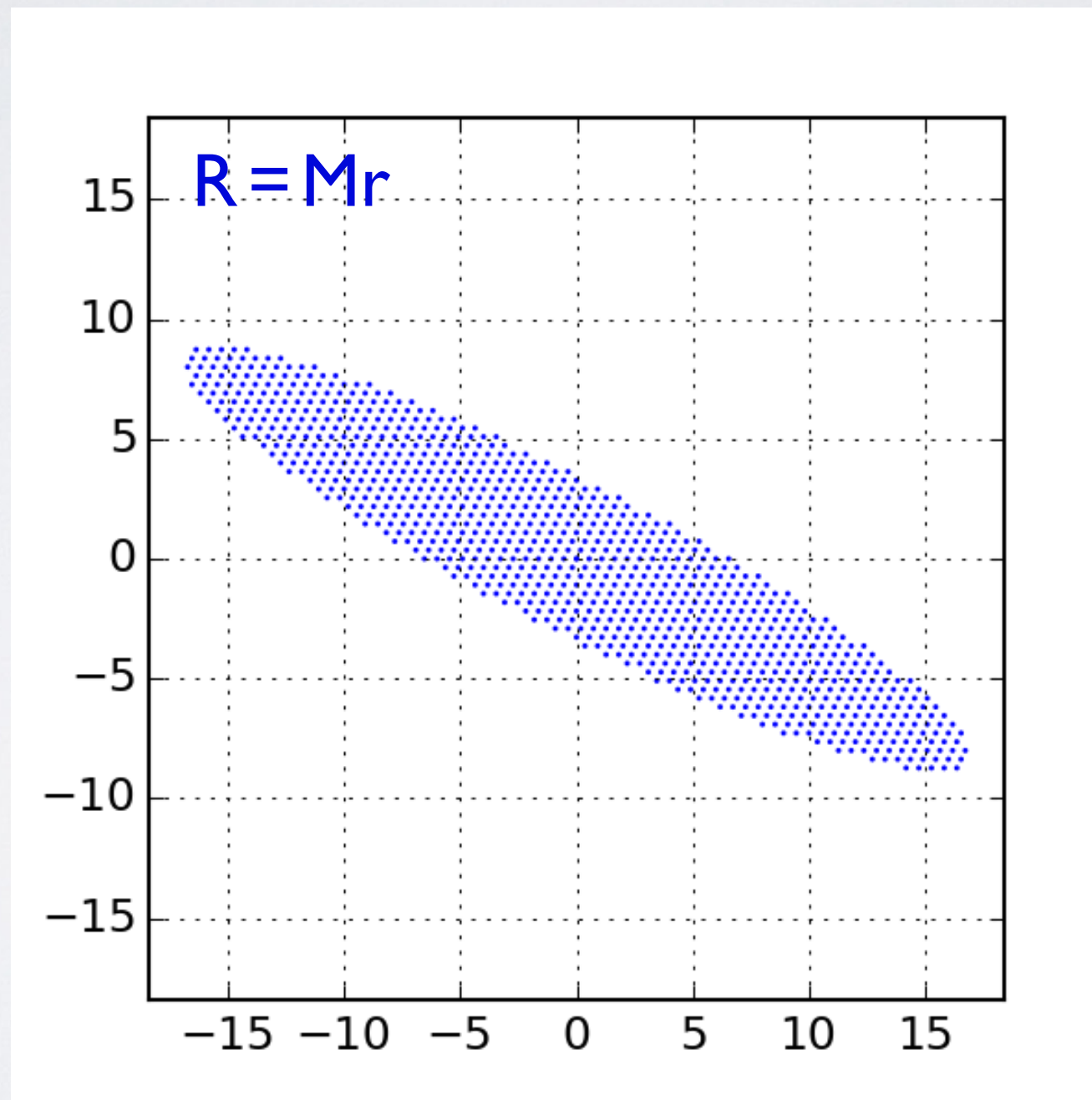
- Matrix C **changes** the old set of coordinate axes (x, y) to a new, convenient set of coordinate axes (x', y') .



modified from dododas.github.io/linear-algebra-with-python/posts/16-12-29-2d-transformations.html

Meaning of Diagonalization (Ch 3.1 I)

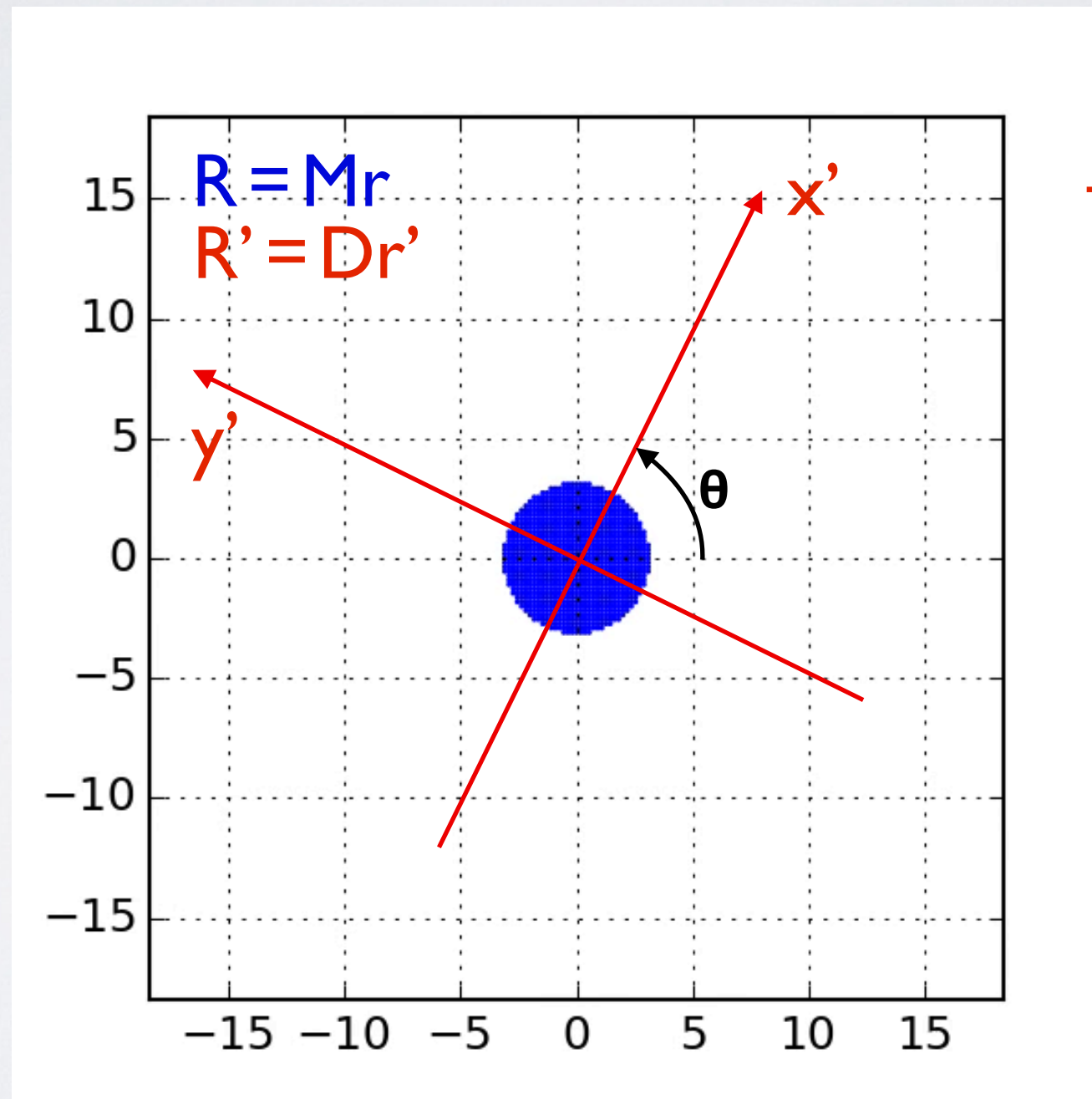
- Matrix C **changes** the old set of coordinate axes (x, y) to a new, convenient set of coordinate axes (x', y') .



modified from dododas.github.io/linear-algebra-with-python/posts/16-12-29-2d-transformations.html

Meaning of Diagonalization (Ch 3.1 I)

- Matrix C **changes** the old set of coordinate axes (x, y) to a new, convenient set of coordinate axes (x', y') .



→ Figure 11.3