6.1, Chapter 3 and Chapter 5 Terms

1. length or norm of a vector
2. line vector is on
3. angle between vectors
4. orthogonal vectors
5. what makes a matrix invertible
6. determinant of 2×2
7. determinant of 3×3 via 6 diagonals
8. determinant of 3×3 via Laplace expansion
9. span of $v_1, v_2, \ldots, v_k$
10. $v_1, v_2, \ldots, v_k$ span $\mathbb{R}^n$
11. $v_1, v_2, \ldots, v_k$ linearly independent
12. subspace
13. basis for a subspace
14. column space of A
15. homogeneous equation vs coordinates
16. null space of A
17. eigenvalue
18. eigenvector
19. characteristic equation for eigenvalues
20. eigenspace and solving for a basis
21. eigenvector decomposition
22. trajectory
23. long term behavior (rate and direction/line)

Examples

1. column space and null space of a matrix
2. a projection matrix and its eigenvectors and eigenvalues
3. a reflection matrix and its eigenvectors and eigenvalues
4. a shear matrix and its eigenvectors and eigenvalues
5. a rotation matrix and its eigenvectors and eigenvalues

Write out ***definitions, big picture ideas, multiple representations and/or examples*** (whatever you would find the most helpful) as we cover them, or as a review of previous material.

1. length or norm of a vector

2. line vector is on

3. angle between vectors

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9. span of $v_1, v_2, \ldots, v_k$

10. $v_1, v_2, \ldots, v_k$ span $\mathbb{R}^n$?

11. $v_1, v_2, \ldots, v_k$ linearly independent

12. subspace

13. basis for a subspace

14. column space of A

15. homogeneous equation versus homogeneous coordinates

16. null space of A

17. eigenvalue

18. eigenvector

19. characteristic equation for eigenvalues

20. eigenspace and solving for a basis

21. eigenvector decomposition

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23. long term behavior (rate and direction/line)

Write out *examples* for the following:

1. column space and null space of a matrix

2. a projection matrix and it's eigenvectors and eigenvalues

3. a reflection matrix and it's eigenvectors and eigenvalues

4. a shear matrix and it's eigenvectors and eigenvalues

5. a rotation matrix and it's eigenvectors and eigenvalues