Terms for Test 3

1. invertible
2. determinant of 2×2
3. determinant of 3×3 via 6 diagonals
4. determinant via Laplace expansion
5. span of $v_1, v_2, \ldots, v_k$
6. $v_1, v_2, \ldots, v_k$ span $\mathbb{R}^n$
7. $v_1, v_2, \ldots, v_k$ linearly independent
8. subspace
9. basis for a subspace
10. column space of A
11. homogeneous equation
12. null space of A
13. eigenvalue
14. eigenvector
15. characteristic equation for eigenvalues
16. eigenspace and solving for a basis
17. eigenvector decomposition
18. trajectory
19. long term behavior (rate and direction/line)

Examples

1. determinant of 3×3 via the diagonal method
2. determinant of 3×3 by Laplace expansion
3. column space and null space of a matrix
4. a projection matrix and it's eigenvectors and eigenvalues
5. a reflection matrix and it's eigenvectors and eigenvalues
6. a shear matrix and it's eigenvectors and eigenvalues
7. a rotation matrix and it's 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. A is invertible if

2. determinant of 2×2

3. determinant of 3×3 via 6 diagonals

4. determinant via Laplace expansion

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

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

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

8. subspace

9. basis for a subspace

10. column space of A

11. homogeneous equation

12. null space of A

13. eigenvalue

14. eigenvector

15. characteristic equation for eigenvalues

16. eigenspace and solving for a basis

17. eigenvector decomposition

18. trajectory

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

Write out *examples* for the following:

1. determinant of 3×3 via the diagonal method

2. determinant of 3×3 by Laplace expansion

3. column space and null space of a matrix

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

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

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

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