Things to Know

1. Solving systems of linear equations.

2. What is the coefficient matrix of a system of linear matrix?

3. What is the augmented matrix?

4. Write the system if matrix form. How do you go back and forth between the matrix form and the system form?

5. Different types of matrices (square, diagonal, upper triangular, etc...)

6. What is the row reduced echelon form of a matrix?

7. Solve a system of linear equations using the rref.

8. What is the inverse of a matrix? How do you find it?

9. The rank of a matrix.

10. The number of solutions of a system of linear equations.

11. Linear combinations.

12. Dot product.

13. Operations with matrices and vectors. What is I_n?

14. Order of operations. Properties.

15. Linear transformations and their properties. The matrix of a linear transformation.

16. Linear transformations and geometry: transformations in the plane and in the 3-dimensional space.

17. The span of a set of vectors.

18. Kernel and image: what they are, properties, how to find them. When is the kernel zero?

19. Various characterizations of invertibility (at least 10).

These are not on the exam, but they are helpful anyway, especially for section 3.1.

20. Linear subspaces. Dimension.

21. Linear independence and its various characterizations.

22. Redundant vectors.

23. Basis.

24. Linear relations.

25. Rank-nullity theorem.