1. "r ≤ m"
2. "r ≤ n"
3. "m − r"
4. "when d is in the row space"
5. "when the left nullspace contains only the zero vector"
6. "I = P21 + P31 + P32 - P32P21 - P21P32"
7. "c1 = c2 = c3 = 0, c4 = c5 = 0"
8. "[1, 1, 1]^T"
9. "0"
10. "2"
11. "1, 4, and 6"
12. "±√3 and 2"
13. "6, 0, and 0"
14. "3"
15. "2 and 6"
16. "[2 3; 0 6]"
17. "-1/2"
18. "[1 0 0 0; -1 1 0 0; 0 -1 1 0; 0 0 -1 1]"
19. "X = [a b c; a b c; a b c]"
20. "Columns individually sum to 0"
21. "nullspace: 3, column space: 6"
22. "0"
23. "4, 2"
24. "1"
25. "0"
26. "6, 0, 0"
27. "Divide by the lengths of the vectors."
28. "[[1, 0], [0, 0]], [[0, 1], [0, 0]], [[0, 0], [1, 0]], [[0, 0], [0, 1]]"
29. "2"
30. "[[-23/4, -1/4, 1, 0], [-1/4, -7/4, 0, 1]]"
31. "S + T"
32. "10"
33. "6"
34. "N(C) = N(A) ∩ N(B)"
35. "[[1, 0, 0], [-2, 1, 0], [-2, 3, 1]]"
36. "[[1, 0, 23/4, 1/4], [0, 1, 1/4, 7/4], [0, 0, 0, 0]]"
37. "[[9, 4], [9, 4]]"
38. "Eigenvalues: 1, -0.3; Eigenvectors: [[9, 4], [1, -1]]"
39. "[[12 + 3y + z, y, z]]"
40. "1"
41. "4"
42. "x3 and x4"
43. "N(C) = N(A) ∩ N(B)"