

| MA265 Lesson number and section of the book | Summer Lesson # | MA265 Content of the lesson | MA265 Online homework Problems from textbook | MA265 Hand graded homework |
|--|-----------------|--|---|-------------------------------|
| Lesson 1. Section 1.1 | 1 | Systems of linear equations | 2,3,7,11,15, 18, 19, 23,24 | 25, 26 |
| Lesson 2. Section 1.2 | 2 | Row reductions and echelon forms | 2,3,7,11,1,4,15, 18, 19,21 | 12, 25, 31 |
| Lesson 3. Section 1.3 | 3 | Vector equations | 5,7,9,11,13,17,19, 22 | 23, 25 |
| Lesson 4. Section 1.4 | | The matrix equation $Ax=b$ | 4,9,11,13,15,19,22,23 | 6, 26 |
| Lesson 5. Section 1.5 | 4 | Solution sets of linear systems | 1,5,10,15,22,23,26,30 | 6, 36 |
| Lesson 6. Section 1.7 | | Linear independence | 1,5,9,11, 16,17, 21,23,27,30 | 26, 28,32 |
| Lesson 7. Section 1.8 | 5 | Introduction to linear transformations | 2,5,6,7,8,9,11,17,19, 33 | 20, 22(exclude e). |
| Lesson 8. Section 1.9 | 6 | The matrix of a linear transformation | 1,3,7,8,13,15,17,24 | 28, 30 |
| Lesson 9. Section 2.1 | 7 | Matrix operations | 1,3,5,7,9,11,12,17 | 18, 28 |
| Lesson 10. Section 2.2 | | The inverse of a matrix | 1,7,9,17,21,24,31 | 19, |
| Lesson 10. Section 2.3 | 8 | Characterizations of invertible matrices | 3,5,7,11 | 13, |
| Lesson 11. Section 2.8 | 9 | Subspaces of \mathbb{R}^n | 1,5,8,9,12,14,17,23,31,33 | 2, 18 |
| Lesson 12. Section 2.9 | 10 | Dimension and rank | 5,9,12,13,15,18,19,20 | 20, 22 |
| Lesson 13. Section 3.1 | | Introduction to determinants | 1,7,9,16,17,19,20,23 | 38,42 |
| Lesson 14. Section 3.2 | 11 | Properties of determinants | 1,4,5,7,15,18,19,22,23,26 | 16,27,29 |
| Lesson 15. Section 3.3 | 12 | Cramer's rule | 1,5,7,11,12,22,23,27,29 | 17,30 |
| Lesson 16. Section 4.1 | 13 | Vector spaces and subspaces | 2,5,8,11,12,14,21,22 | 24, 32 |
| Lesson 17. Section 4.2 | 14 | Null space, column spaces and linear transf. | 1,3,6,7,8,9,15,17,26 | 32, 36 |
| Lesson 18. Section 4.3 | 15 | Linear independent sets; bases | 3,5,8,9,11,13,16,22,26 | 28, 34 |
| Lesson 19. Section 4.5 | 16 | The dimension of a vector space | 3,4,6,7,8,9,10,12,13,14,22 | 20,26 |
| Lesson 20. Section 4.6 | 17 | Rank | 1,4,6,7,8,9,10,11,13,14,18,19,20 | 24, 26 |
| Lesson 21. Section 5.1 | | Eigenvectors and eigenvalues | 3,4,7,9,12,13,17,18 | 20, 36 |
| Lesson 22. Section 5.2 | 18 | The characteristic equation | 1,3,5,9,13,15,18,21 | 20,22 |
| Lesson 23. Section 5.3 | 19 | Diagonalization | 1,2,3,5,7,11,12,15 | |
| Lesson 24. Section 5.3 | 20 | Diagonalization | 19,21,22,24,27,31 | 26,32 |
| Lesson 25. Section 5.4 | 21 | Eigenvectors of linear transformations | 1,4,7,11,13 | 26 |
| Lesson 26. Appendix B | | Complex numbers | Hand written problems only | no exercises in the book |
| Lesson 27. Section 5.5 | 22 | Complex eigenvalues | 1,3,6,7,10 | |
| Lesson 28. Section 5.7 | | Applications to diff. equations | 1,3,5,6,7,9 | 11,13 |
| Lesson 29. Section 5.7 | 23 | Applications to diff. equations | 15,17,19,21 | |
| Lesson 30. Section 6.1 | 24 | Inner product, length and orthogonality | 1,3,6,9,10,13,14,15,18 | 24,26 |
| Lesson 31. Section 6.2 | 25 | Orthogonal sets | 2,6,12,13,15,17,21 | 24,26 |
| Lesson 32. Section 6.3 | 26 | Orthogonal projections | 2,4,8,12,13,15,17 | 20,22 |
| Lesson 33. Section 6.4. | 27 | The Gram-Schmidt process (omit QR factorization) | 1,5,8,10,14 | 12 |
| Lesson 34. Section 6.5 | 28 | Least-squares problems (beginning to example 3) | 1,3,5,9,13 | 14 |
| Lesson 35. Section 6.7 | 29 | Inner product spaces | 1,3,5,7,9,10 | 12, 17 |
| Lesson 36. Section 7.1 | 30 | Diagonalization of symmetric matrices | 1,4,5,10,12,15,17 | 22, 26 |
| Lesson 37. Section 7.1 | 31 | Diagonalization of symmetric matrices | 24,27,32,33,37 | |