

Mathematics 3010, Summer 2008: Chs. 15-16 Problems

Additional Chapter 15 Problems

1. Where does the idea of matrix multiplication appear implicitly for the first time?
2. Who described how to compute determinants by expansion?
3. Who gave matrices their name?
4. Who connected matrices to linear equations and used the determinant to check if the equations were solvable?
5. What is the Cayley-Hamilton theorem?
6. What famous author did original work in linear algebra?
7. What number system did Hamilton discover?
8. Who developed the ideas of eigenvalues and eigenvectors?

Chapter 16

1. Who first stated that a series converges only if its terms tend to zero?
2. Who proved the ratio test for series convergence?
3. What was the first proof to use epsilons and deltas in their modern form?
4. Why was Cauchy motivated to define the integral as a sum?
5. What functions are integrable, according to Cauchy?
6. Fourier's study of what led to what are now called Fourier series?
7. What mathematician defined the notion of uniform convergence?
8. What was Riemann's example of a function that was integrable, but not in the class of functions considered by Cauchy?