

Find all roots of

$$x^8 - 21x^7 + 186x^6 - 906x^5 + 2649x^4 - 4749x^3 + 5084x^2 - 2964x + 720$$

('solve', 'factor', etc. are not allowed).

Set 6.3: 14, 16 (use Gauss-Jordan elimination; present each solution in vector form).

Set 6.7: 8 (use technique of your choice).

Set 7.1: 10, 14 (find all eigenvalues - that's what "spectrum" means - and corresponding eigenvectors).