
DOKUZ EYLÜL UNIVERSITY FACULTY OF SCIENCE
DEPARTMENT OF MATHEMATICS
ALGEBRA GROUP

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ALGEBRA SEMINARS

Elementary Proofs of the Wedderburn-Artin Theorem

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ABSTRACT

We shall present three proofs of the Wedderburn-Artin Theorem. In the first proof for non-unital rings, we follow Szele's article [1], firstly proving the Density Theorem. In the second proof for unital rings, we follow Nicholson's article [2]. Both of these proofs are for semiprime right or left artinian rings. In the third proof, we follow Section 3 Structure of Semisimple Rings from the book [3] by Lam. All proofs are elementary.

References

- [1] Szele, T., *Simple proof of the Wedderburn-Artin structure theorem*, Acta Mathematica Hungarica, 5(1-2), 101-107, 1954.
- [2] Nicholson, W. K., *A Short Proof of the Wedderburn Artin Theorem*, New Zealand Journal of Mathematics, 22, 83-86, 1993.
- [3] Lam, T. Y. *A First Course in Noncommutative Rings*. 2nd edition. Springer, 2001.

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PLACE: Dokuz Eylül University, Tınaztepe Campus, Faculty of Science
Department of Mathematics, Buca/İzmir. **Room B206.**
