

On the category of near-rings

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ABSTRACT.

We consider the category of near-rings and study some categorical permanence properties. We investigate the connection between the concepts of monomorphism and, respectively, epimorphism of near-rings and the concepts of injective and, respectively, surjective morphism of near-rings. We also present some interesting properties of epimorphisms in the category of near-rings.

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REFERENCES

- [1] Balbes, R. and Dwinger, P., *Distributive Lattices*, University of Missouri Press, Missouri, 1974
- [2] Dăncescu, S. and Năstăsescu, C., *Special Topics in Algebra* (in Romanian), University of Bucharest Press, Bucharest, 1982
- [3] Gutierrez, J. and Ruiz De Velasco Y Bellas, C., *Distributive elements in the near-rings of polynomials*, Proc. Edinburgh Math. Soc., **32** (1989), 73–80
- [4] Pilz, G., *Near-Rings: The Theory and Its Applications*, Revised Edition, North Holland Publishing Co., Amsterdam, 1983
- [5] Rotman, J. J., *Introduction to the Theory of Groups*, 4th Edition, Springer-Verlag, New York, 1995

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