Mathematisches Institut
der Universität München
Prof. Dr. B. Pareigis

WS 2001/02
Set 12

Problem set for Advanced Algebra

(45) (a) Let A- Mod be equivalent to B- Mod. Show that Mod -A and Mod -B are also equivalent.
  (b) Let $\mathbb{K}$ be an integral domain (commutative without zero-divisors). Show that $\mathbb{K}$- Mod $\simeq$ Mod -$\mathbb{K}$.

(46) Show that an equivalence of arbitrary categories preserves monomorphisms.

(47) Show that an equivalence of module categories preserves projective modules, but not free modules.

(48) Let D be a division algebra. Show that D- Mod $\simeq$ Mod -D if and only if there is an isomorphism of algebras $D \cong D^{op}$.

Due date: Tuesday, 22.1.2002, 16:15 in Lecture Hall 138