MATH 101: ALGEBRA I
HOMEWORK, DAY #23

Problem JV23.A. Let R be a ring, and let D, L, M, N be R-modules. Show that if

$$0 \to L \xrightarrow{\psi} M \xrightarrow{\phi} N$$

is exact, then

$$\operatorname{Hom}_R(D, L) \xrightarrow{\psi_*} \operatorname{Hom}_R(D, M) \xrightarrow{\phi_*} \operatorname{Hom}_R(D, N)$$

is exact. *[Hint: check your work using Theorem 28.]*