MA3408 Week 14

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April 20, 2021

Question 1.

Show that the inclusions $i_X : X \to X \vee Y$ and $i_Y : Y \to X \vee Y$ induce an isomorphism

$$i_X^* \oplus i_Y^* : \widetilde{K}^{-i}(X \vee Y) \to \widetilde{K}^{-i}(X) \oplus K^{-i}(Y)$$

for all $i \geq 0$.

Question 2.

Consider the following commutative diagram with exact rows and where all the f_n'' are isomorphisms:

$$\begin{array}{ccccccccc}
C_{n+1}'' & \xrightarrow{\delta_{n+1}} & C_n' & \xrightarrow{i_n} & C_n & \xrightarrow{p_n} & C_n'' & \xrightarrow{\delta_n} & C_{n-1}' \\
{\scriptstyle f_{n+1}''}\downarrow & & \downarrow{\scriptstyle f_n'} & & \downarrow{\scriptstyle f_n} & & \downarrow{\scriptstyle f_n''} & & \downarrow{\scriptstyle f_{n-1}'} \\
D_{n+1}'' & \xrightarrow[\delta_{n+1}']{} & D_n' & \xrightarrow[i_n']{} & D_n & \xrightarrow[p_n']{} & D_n'' & \xrightarrow[\delta_n']{} & D_{n-1}'
\end{array}$$

Show there is an exact sequence in which $\Delta_n = \delta_n \cdot (f_n'')^{-1} \cdot q_n : D_n \to C_{n-1}'$:

$$\cdots \to C_n' \xrightarrow{(i_n, f_n')} C_n \oplus D_n' \xrightarrow{f_n - j_n} D_n \xrightarrow{\Delta_n} C_{n-1}' \to \cdots$$