

$$\begin{array}{ccccc}
 & & f_* \circ g_* & & \\
 & \searrow & & \nearrow & \\
 \pi(Y, y) & \xrightarrow{g_*} & \pi(X, g(x)) & \xrightarrow{f_*} & \pi(Y, (f \circ g)(y)) \\
 & \searrow \scriptstyle \mathbf{1}_{\pi(Y, y)} & & \swarrow \scriptstyle v & \\
 & & \pi(Y, y) & &
 \end{array}$$