

$$\begin{array}{ccc}
 \pi_1(X, x_0) \times \pi_n(X, x_0) & \xrightarrow{\quad \odot \quad} & \pi_n(X, x_0) \\
 \downarrow f_* \times f_* & & \downarrow f_* \\
 \pi_1(Y, y_0) \times \pi_n(Y, y_0) & \xrightarrow{\quad \odot \quad} & \pi_n(Y, y_0)
 \end{array}$$