Quiz 3

- which ones among the compact connected 2-manifolds Σ_g, $g \geq 0$ and X_k, $k \geq 1$ have <u>abelian</u> fundamental group?

- which among the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 (viewed as closed subspaces of $\mathbb{R}^2$) have fund. group $\mathbb{Z} * \mathbb{Z}$?
  - which have fund group $\mathbb{Z}$?
  - which have trivial fund. group?

- State the Seifert-van Kampen theorem (any formulation)