■ Remark 2.1:

1. Instead of Assumption 4) we can also require the more general conditions

$$4a) \quad \sup_{u \in V_0 \setminus \{0\}} \frac{a(u,v)}{\|u\|_X} \geq \alpha_1' \|v\|_X \quad \forall v \in V_0,$$

$$4b) \quad \sup_{v \in V_0 \setminus \{0\}} \frac{a(u,v)}{\|v\|_X} \geq \alpha_1'' \|u\|_X \quad \forall u \in V_0.$$

If $a(\cdot,\cdot)$ is symmetric on V_0, then 4a) $\equiv$ 4b) and $\alpha_1' = \alpha_1''$.

2. In some, practically important problems (e.g. Stokes problem), Assumption 4) can be shown on the whole space X instead of the subspace $V_0 \subset X$ only.

3. In Chapter 1, we have already discussed some typical examples leading (naturally or artificrally) to mixed variational formulations:
   - Example 1.1: the Stokes problem
   - Example 1.2: mixed variational formulation of the Dirichlet problem for the Poisson equation ($\to$ Hellinger-Reisner principle)
   - Example 1.3: mixed variational formulation of the 1st biharmonic BVP