

U is a subspace of V .

$$U + U = \{u_1 + u_2 : u_1, u_2 \in U\}$$

$$\forall u_1, u_2 \in U,$$

$$u_1 + u_2 \in U \text{ (closed under addition)} \Rightarrow \underline{U + U \subseteq U} \quad (1)$$

$$\forall u \in U : u = u + 0 \text{ (additive identity)} \Rightarrow$$

$$\Rightarrow \underline{U \subseteq U + U} \quad (2)$$

$$(1), (2) \Rightarrow U + U = U \text{ if } U \text{ is a subspace.}$$