

U, W subspaces of V .

$$U + W = \{x + y : x \in U, y \in W\}$$

Let $a \in U + W \Rightarrow a = x + y : x \in U, y \in W$

Addition is commutative on $V \Rightarrow a = x + y = y + x$

$$\Rightarrow a \in W + U$$

$$\Rightarrow U + W \subseteq W + U \quad (1)$$

Let $b \in W + U \Rightarrow b = y + x : y \in W, x \in U$

Addition is commutative on $V \Rightarrow b = y + x = x + y$

$$\Rightarrow b \in U + W$$

$$\Rightarrow W + U \subseteq U + W \quad (2)$$

$$(1)(2) \Rightarrow U + W = W + U.$$