Proof: Using Prop. 8

a) The zero vector $\bar{0} = 0\bar{v}_1 + 0\bar{v}_2 + \cdots + 0\bar{v}_p$ is a linear combination of $\bar{v}$'s.

b) If $w_1 = c_1\bar{v}_1 + c_2\bar{v}_2 + \cdots + c_p\bar{v}_p$ & $w_2 = d_1\bar{v}_1 + \cdots + d_p\bar{v}_p$ are 2 linear combination

Then

$$w_1 + w_2 = (c_1+d_1)\bar{v}_1 + \cdots + (c_p+d_p)\bar{v}_p$$

c) If c is any scalar, & using w_1 from above

$cw_1 = cc_1\bar{v}_1 + \cdots + cc_p\bar{v}_p$ is again a linear combination.