(Q12)
(a) True.

Proof. By definition of vector space sums,

$$W_1 + W_2 = \{w = w_1 + w_2 \, : \; w_1 \in W_1, w_2 \in W_2\}$$

Since $W_1 + W_2 = W_1$, for all $w \in W_1 + W_2, w \in W_1$, then $w_1, w_2 \in W_1$ and thus $W_2 \subseteq W_1$. ■

(b) True.

Proof. Rearrange the set into a system of homogeneous equations. If there is one solution, then it has to be unique and thus trivial.
If there is more than one (nontrivial) solution, it can be expressed in the form

$$\sum_{i=1}^{k} t_i \mathbf{x}_i$$

Where $\mathbf{x}$ is a basic solution and t_i is an arbitrary field element.
Since $\mathbb{F}$ is infinite, there are infinite choices for t_i, and thus there are infinite solutions. ■

(c) False.
Let $V = P_3(\mathbb{F})$ and $S_1 = \{cx\}$ where $c \in \mathbb{F}$, $S_2 = \{x, x^2, x^3\}$.
$\operatorname{span} S_1$ is clearly a subset of $\operatorname{span} S_2$, but S_1 is clearly not a subset of S_2.