Name_____No_____3/2/2017

1. Let $\mathbf{u} = (u_1, u_2, ..., u_n)$ and $\mathbf{v} = (v_1, v_2, ..., v_n)$ be elements of $\mathbf{R}^n$ and let c be a scalar. Write definition of addition and scalar multiplication.

2. Let $\mathbf{u}$, $\mathbf{v}$, and $\mathbf{w}$ be vectors in $\mathbf{R}^n$ and let c and d be scalars. Write properties of **Vector Addition and Scalar Multiplication**

3. Let $\mathbf{u}$ = (2, 5, –3), $\mathbf{v}$ = (–4, 1, 9), and $\mathbf{w}$ = (4, 0, 2). Determine the vector combination $2\mathbf{u} – 3\mathbf{v} + \mathbf{w}$.

4. Let $\mathbf{v}_1$, $\mathbf{v}_2$, ..., $\mathbf{v}_m$ be vectors in $\mathbf{R}^n$. The vector $\mathbf{v}$ in $\mathbf{R}^n$ is a *linear combination* of $\mathbf{v}_1$, $\mathbf{v}_2$, ..., $\mathbf{v}_m$. Write the definition of linear combination.

5. Write the definition of subspace

6. Consider the subset V of $\mathbf{R}^3$ of vectors of the form $(a, 2a, 3a)$. Show that V is a subspace.