VECTOR ARITHMETIC

(1-5) Let $\vec{u} = 2\hat{i} + 3\hat{j} + 4\hat{k}$, $\vec{v} = \hat{i} - 5\hat{j} + \hat{k}$, and $\vec{w} = -3\hat{i} - 2\hat{j} - 8\hat{k}$. Find the following.

1. $\vec{u} + \vec{v} + \vec{w}$
2. $3\vec{u} - \vec{v} - 2\vec{w}$
3. $2(\vec{u} + \vec{v}) + \vec{w}$
4. $\vec{u} + 3(\vec{v} - \vec{w})$
5. $4\vec{w} - 3\vec{w}$
6. Let $\vec{v} = -\hat{i} + 5\hat{j} - 2\hat{k}$ and $\vec{w} = 3\hat{i} + \hat{j} + \hat{k}$. Find $-2\vec{v} + 4\vec{w}$.
7. Let $\vec{v} = -\hat{i} + 5\hat{j} - 2\hat{k}$ and $\vec{w} = 3\hat{i} + \hat{j} + \hat{k}$. Find $\vec{v} - 2\vec{w}$.