ANGLES BETWEEN VECTORS

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 angles between the following vectors. Give your answers in degrees rounded, if necessary, to the nearest tenth of a degree.

1. $\vec{u}$ and $\vec{v}$

2. $\vec{v}$ and $\vec{w}$

3. $\vec{v}$ and $2\vec{w}$

4. $\vec{w}$ and $-\vec{w}$

5. $(\vec{u} + \vec{w})$ and $(\vec{u} - \vec{w})$