1.10 Pop quiz on Lecture 10 material

1. Find a vector perpendicular to both $|1,1,1\rangle$ and $|1,-1,-2\rangle$.

2. Find the area of the triangle in $\mathbb{R}^3$ with vertices $|2,-5,4\rangle$, $|3,-4,5\rangle$ and $|3,-6,2\rangle$.

3. Find the volume of the parallelipiped with adjacent edges $\overrightarrow{PQ}$, $\overrightarrow{PR}$, $\overrightarrow{PS}$, where

$$P = |2,0,-1\rangle,\ Q = |4,1,0\rangle,\ R = |3,-1,1\rangle \text{ and } S = |2,-2,2\rangle.$$

4. Find the Cartesian equation of the plane with vector form

$$|x,y,z\rangle = s\,|1,-1,0\rangle + t\,|2,0,1\rangle + |-1,1,1\rangle, \text{ with } s,t \in \mathbb{R}.$$