Math 4133 - Linear Algebra

Quiz #8 - 2010.03.31

Name: _____

Consider the vector subspace $\mathbb{S}$ of $\mathbb{R}^3$ defined as follows:

$$\mathbb{S} = \{\, a\,\langle -1, 2, 1\rangle + b\,\langle 0, 2, 2\rangle \mid a, b \in \mathbb{R}\,\}\,.$$

Notice that $\langle -1, 2, 1\rangle$ and $\langle 0, 2, 2\rangle$ are the two vectors from the previous quiz. Construct a subspace $\mathbb{T}$, of $\mathbb{R}^3$, which is of dimension 1 whose vectors are all perpendicular to the vectors of $\mathbb{S}$.