# Quiz 2

**1.** Determine whether or not the vector equation below has a solution. If it has a unique solution, find it. If it has infinitely many solutions express the solutions parametrically in terms of the free variable(s).

$$x\begin{bmatrix}1\\2\\1\end{bmatrix} + y\begin{bmatrix}0\\-1\\-1\end{bmatrix} + z\begin{bmatrix}-3\\-8\\-5\end{bmatrix} = \begin{bmatrix}1\\3\\2\end{bmatrix}$$

**2.** Suppose $v_1, v_2$ are two vectors in $\mathbb{R}^2$, and $b$ is another vector in $\mathbb{R}^2$. Give an example of vectors $v_1, v_2$, and $b$ such that the vector equation $xv_1 + yv_2 = b$ has

**(a)** A unique solution.

**(b)** No solution.

**(c)** Infinitely many solutions.