

# Quiz 4

*Name:*

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Consider the following set of vectors in  $\mathbb{R}^3$  :

$$S = \left\{ \begin{pmatrix} 1 \\ -1 \\ 2 \end{pmatrix}, \begin{pmatrix} 1 \\ 3 \\ -2 \end{pmatrix}, \begin{pmatrix} 3 \\ 2 \\ 1 \end{pmatrix} \right\}.$$

1. Does the vector  $\begin{pmatrix} 1 \\ 3 \\ 1 \end{pmatrix}$  belong to the span of  $S$ ?
2. Does the span of  $S$  equal  $\mathbb{R}^3$ ? If so, prove it; if not, describe the span of  $S$  as succinctly as you can.