Math 261   Practice Quiz 4

Name:_____

- Put your name in the "_____" above.

- Write your answers down neatly, use complete sentences, and *justify your work*.

- Good luck!

1. Let

$$V = \text{Span}\left\{ \begin{bmatrix} 6 \\ 1 \\ 1 \\ 5 \end{bmatrix}, \begin{bmatrix} 17 \\ 3 \\ 2 \\ 10 \end{bmatrix}, \begin{bmatrix} 52 \\ 9 \\ 7 \\ 35 \end{bmatrix}, \begin{bmatrix} 18 \\ 3 \\ 4 \\ 20 \end{bmatrix} \right\}.$$

   (a) What is a basis for V?

   (b) What is the dimension of V?

2. Let $b \in \mathbb{R}$ and
$$W = \mathrm{Span} \left\{ \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, \begin{bmatrix} 2 \\ b+7 \\ b^2+b \end{bmatrix} \right\}.$$

For which value(s) of b is W a 1-dimensional subspace of $\mathbb{R}^3$?