Multiple Choice

1 (25 pts) Let α and β be such that the vector $(3, \alpha, \beta)$ in the **span** of $v_1 = (5, 2, 1)$ and $v_2 = (1, 0, 0)$. Then

(a) $\alpha = -\beta$

(b) $\alpha = 2\beta$

(c) $\alpha = -3\beta$

(d) $\alpha = 4\beta$

(e) $\alpha = \beta$

2 (25 pts)
Let

$$u = \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}, v = \begin{bmatrix} 2 \\ -1 \\ 3 \end{bmatrix}, w = \begin{bmatrix} 0 \\ 1 \\ -2 \end{bmatrix}$$

Which of the following statements is true ?

(a) w can be written as a linear combination of u and v

(b) w is in the **Span**(u, v)

(c) u,v and w are linearly independent

(d) u,v and w are linearly dependent

(e) u and v are linearly dependent