

1. For each of the following statements, write the word “true” or “false.”
  - (a) For any two vectors  $\mathbf{u}$  and  $\mathbf{v}$  in  $\mathbb{R}^3$ ,  $\text{Span}\{\mathbf{u}, \mathbf{v}\}$  is a plane containing the origin.  
False. Consider, for example, the case where  $\mathbf{u} = \mathbf{v}$ .
  - (b) Any line through the origin is equal to  $\text{Span}\{\mathbf{u}\}$  for some nonzero  $\mathbf{u} \in \mathbb{R}^3$ .  
True. Simply let  $\mathbf{u}$  be any point on the line besides the origin.
2. Compute the inverse of the following matrix.

$$A = \begin{pmatrix} 1 & 1-i & 0 \\ -6 & -6+6i & 3 \\ 0 & 1 & 0 \end{pmatrix}$$

$$A^{-1} = \begin{pmatrix} 1 & 0 & -1+i \\ 0 & 0 & 1 \\ 2 & \frac{1}{3} & 0 \end{pmatrix}$$