

$H =$ line in the plane through the origin and $\vec{v} = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$ is a subspace of $V = \mathbb{R}^2$

- (a) True, and I can explain why
- (b) True, but I am unsure why
- (c) False, and I can explain why
- (d) False, but I am unsure why
- (e) Errr. . .

$H =$ the 1st quadrant in the plane is a subspace of $V = \mathbb{R}^2$

- (a) True, and I can explain why
- (b) True, but I am unsure why
- (c) False, and I can explain why
- (d) False, but I am unsure why
- (e) Errr. . .

$H = \mathbb{P}_2$ is a subspace of $V = \mathbb{P}_3$

- (a) True, and I can explain why
- (b) True, but I am unsure why
- (c) False, and I can explain why
- (d) False, but I am unsure why
- (e) Errr. . .

Let $\vec{\mathbf{v}}_1 = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$ and $\vec{\mathbf{v}}_2 = \begin{bmatrix} -2 \\ 1 \\ -5 \end{bmatrix}$. Then $H = \text{Span} \{ \vec{\mathbf{v}}_1, \vec{\mathbf{v}}_2 \}$ is a subspace of $V = \mathbb{R}^3$

- (a) True, and I can explain why
- (b) True, but I am unsure why
- (c) False, and I can explain why
- (d) False, but I am unsure why
- (e) Errr. . .

$H =$ the 1st and 3rd quadrant in the plane is a subspace of $V = \mathbb{R}^2$

- (a) True, and I can explain why
- (b) True, but I am unsure why
- (c) False, and I can explain why
- (d) False, but I am unsure why
- (e) Errr. . .

$$\text{Let } A = \begin{bmatrix} 1 & 0 & -2 & 3 \\ 0 & 1 & 2 & -1 \end{bmatrix}$$

Then $H = \{ \vec{x} \in \mathbb{R}^4 \mid A\vec{x} = \vec{0} \}$ is a subspace of $V = \mathbb{R}^4$

- (a) True, and I can explain why
- (b) True, but I am unsure why
- (c) False, and I can explain why
- (d) False, but I am unsure why
- (e) Errr. . .

Let $A = \begin{bmatrix} 2 & 6 & 2 & 8 \\ -3 & 1 & -3 & -8 \\ 3 & 4 & 3 & 10 \end{bmatrix}$

1. Fill in the blank: $\text{nul}(A)$ is a subspace of $\mathbb{R}^{\text{---}}$

2. Is $\vec{x} = \begin{bmatrix} 2 \\ -1 \\ 3 \\ -1 \end{bmatrix}$ in $\text{nul}(A)$?

3. Find a spanning set of vectors for $\text{nul}(A)$

4. Fill in the blank: $\text{col}(A)$ is a subspace of $\mathbb{R}^{\text{---}}$

5. Is $\vec{b} = \begin{bmatrix} 44 \\ -36 \\ 51 \end{bmatrix}$ in $\text{col}(A)$?

6. Find a spanning set of vectors for $\text{col}(A)$