ex 4) $\left\{ \begin{pmatrix} 1 \\ 3 \\ 2 \end{pmatrix}, \begin{pmatrix} 2 \\ 6 \\ 4 \end{pmatrix} \right\}$

→ lin. dep. since $\begin{pmatrix} 1 \\ 3 \\ 2 \end{pmatrix} = \frac{1}{2}\begin{pmatrix} 2 \\ 6 \\ 4 \end{pmatrix}$

5) $\begin{bmatrix} 3 & 2 & 1 & 0 \\ 1 & 2 & 4 & 5 \\ 0 & 0 & 0 & 0 \end{bmatrix}$

→ columns are lin. dep. $4 > 3$

→ rows are lin. dep., since one row is $\begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \end{pmatrix} = \vec{0}$.

6) $\begin{bmatrix} 1 & 0 \\ 3 & 0 \end{bmatrix} = A$

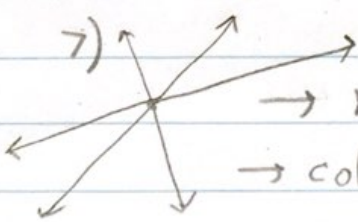
→ columns are lin. dep. since one is $\vec{0}$

→ $\det A = 0$

→ $\det A^t = 0$

→ rows are lin. dep.

→ for square matrix $n \times n$ the columns and rows are either both lin. dep. or both lin. indep.

7) 

→ system → $A\vec{x} = \vec{b}$; A 3×2

→ rows of A are lin. indep. ($3 > 2$)

→ columns of A are lin. indep. (one solution)