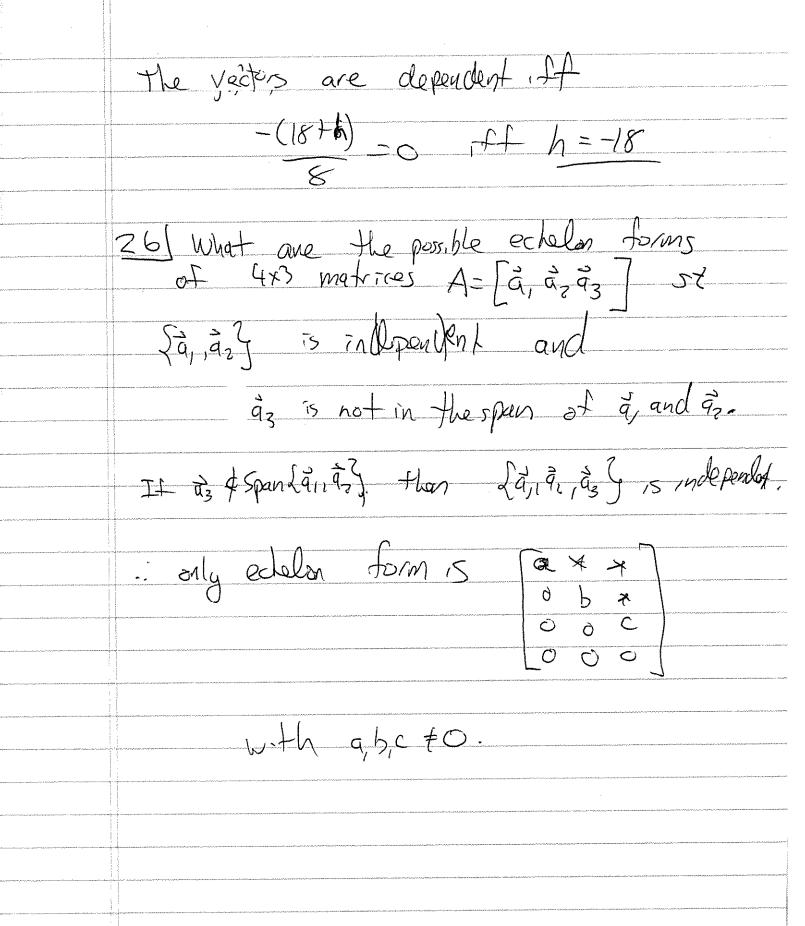
Mest 4 107/6,12,26 6) Do the columns Form a lin. ind ret? Yes. There are 3 pivot columns, so there ove no free variables in corresponding homog. Chav system Hence it has Jonly the trivial solution. 121 For which have the following vectors
Independent? (we need to find h so
that thee is a few variable in corresponding homog. system) $\begin{bmatrix} 3 - 6 & 9 \\ -6 & 4 & h \\ 1 & -3 & 3 \end{bmatrix} \begin{bmatrix} 1 - 2 & 3 \\ 0 & -8 & 18+h \\ 0 & -1 & 0 \end{bmatrix} \begin{bmatrix} 1 - 2 & 3 \\ 0 & -8 & 18+h \\ 0 & 0 & -(18+h) \\ 0 & 0 & 8 \end{bmatrix}$



| 12 | Let
$$\vec{b} = \begin{bmatrix} -\frac{1}{3} \\ -\frac{1}{4} \end{bmatrix}$$
 and let \vec{A} as in

the previous exercise. Is $\vec{b} \in Range(\vec{a} \mapsto A\vec{a})$?

If so, then $A\vec{a} = \vec{b}$ is consider!

Let's see:

$$\begin{bmatrix} 3 & 2 & 10 & -6 & -1 \\ 1 & 0 & 2 & -4 & 3 \\ 0 & 1 & 2 & 3 & -1 \\ 0 & 1 & 2 & 3 & 7 \\ 1 & 4 & 10 & 8 & 4 \end{bmatrix} \begin{bmatrix} 1 & 0 & 2 & -4 & 3 \\ 0 & 1 & 2 & 3 & -1 \\ 0 & 4 & 8 & 12 & 1 \end{bmatrix}$$

$$\vec{a} \begin{bmatrix} 1 & 0 & 2 & -4 & 3 \\ 0 & 1 & 2 & 3 & -1 \\ 0 & 2 & 4 & 6 & -10 \\ 0 & 0 & 0 & 5 \end{bmatrix}$$

This is inconsistent, so no, \vec{b} is not in the range.

36 Let T: Rn-2RM be linear. Suppose that Sa, 73 is independent, bit LT(i), T(i)) is dependent. Show that T(x)=0 has a nontruial Solotion There are constants C, Cz, not loth 700 Such that (,T(2)+(,T(V)=0, 50 $T(C_1\vec{u}+C_2\vec{v})=\vec{o}.$ Since (viv) is independent, Ciu+(20) is non-zero, 50 is a nontrivial 50/1 to T(\$)=01