Excercises for Sect. 1.5

Student

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1.

a) (1,0,0), (0,1,0), (0,-1,-1)
b) $e_1, e_2, e_1, -e_2$

2.

rref reveals the following:
a) Yes
b) Yes
c) Yes

7.

The third vector will always be a combination of the first two so a three element independent set cannot be achieved. There is no real value for α which will construct a basis for $\mathbb{R}^3$.

10.

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11.

5 vectors over 4 dimensions cannot be independent.