
Exercise 1 *True or False?*

1. If $\{\mathbf{x}, \mathbf{y}\}$ is linearly independent, then $\{\mathbf{x}, \mathbf{y}, \mathbf{x} + \mathbf{y}\}$ is linearly independent.

Multiple Choice:

- (i) *True*
- (ii) *False*

2. If $\{\mathbf{x}, \mathbf{y}, \mathbf{z}\}$ is linearly independent, then $\{\mathbf{y}, \mathbf{z}\}$ is linearly independent.

Multiple Choice:

- (i) *True*
- (ii) *False*

3. If $\{\mathbf{y}, \mathbf{z}\}$ is linearly dependent, then $\{\mathbf{x}, \mathbf{y}, \mathbf{z}\}$ is linearly dependent.

Multiple Choice:

- (i) *True*
- (ii) *False*

4. If $a\mathbf{x} + b\mathbf{y} + c\mathbf{z} = \mathbf{0}$, then $\{\mathbf{x}, \mathbf{y}, \mathbf{z}\}$ is linearly independent.

Multiple Choice:

- (i) *True*
- (ii) *False*

Source

[Nicholson] W. Keith Nicholson, *Linear Algebra with Applications*, Lyryx 2021, Open Edition, Problem 5.2.7.