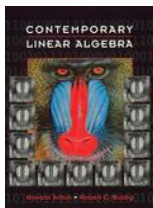Chapter 3, Section 4 of *Contemporary Linear Algebra* by Anton and Busby

Next Page

1. Which of the following sets of vectors is linearly dependent?
- A $\{(1, 0, 0), (0, 1, 0)\}$
- B $\{(2, 2), (2, -2)\}$
- C $\{(0, 4), (4, 0)\}$
- D $\{(2, 8, 8), (-4, 12, 24), (3, -2, -8)\}$
- E $\{(8, 10, -6), (8, 12, 4), (0, -1, -4)\}$

Next Question

2. Find the false statement.

the set of vectors of the form (x, y) for $x, y \in \mathbf{R}$ is a subspace of $\mathbf{R}^2$

the set of vectors of the form (x, y, z) for $x, y, z \in \mathbf{R}$ is a subspace of $\mathbf{R}^3$.

the set of vectors of the form $(x, 0, z)$ for $x, z \in \mathbf{R}$ is a subspace of $\mathbf{R}^3$

the set $\{(0, 0, 0, 0)\}$ is a subspace of $\mathbf{R}^4$.

the set of vectors of the form $(x, 2x + 1)$ for $x \in \mathbf{R}$ is a subspace of $\mathbf{R}^2$.

Next Question

3. Which of the following sets of vectors is linearly dependent no matter which real numbers $a, b, c, d, e, f, g, h, i$ represent?

- A $\{(a, b), (c, d), (e, f)\}$
- B $\{(a, b, c, d), (e, f, g, h)\}$
- C $\{(a, b, c), (d, e, f), (g, h, i)\}$
- D $\{(a, b, c), (d, e, f)\}$
- E $\{(a, b), (c, d)\}$

Next Question

4. Which of the vectors can be added to the set
$\{(2, 1, -1, 4), (1, 2, 1, 0)\}$ to make a linearly independent set?

- ▸A $(3, 3, 0, 4)$
- ▸B $(1, -1, -2, 4)$
- ▸C $(0, -3, -3, 4)$
- ▸D $(2, 3, 1, 4)$
- ▸E $(1, -4, -5, 8)$

Next Question

5. Find a set of vectors that span the solution space of the homogeneous system

$$\begin{array}{rrrrrl}
x_1 & -x_2 & +x_3 & +x_4 & -2x_5 & = & 0 \\
-2x_1 & +2x_2 & -x_3 & & +x_5 & = & 0 \\
x_1 & -x_2 & +2x_3 & +3x_4 & -5x_5 & = & 0.
\end{array}$$

- A {(1,1,0,0,0),(1,0,-2,1,0),(-1,3,0,0,1)}
- B {(1,1,0,0,0),(1,0,-2,1,0),(-1,0,3,0,1)}
- C {(1,0,1,0,0),(1,0,-2,1,0),(-1,0,3,0,1)}
- D {(1,1,0,0,0),(0,1,-2,1,0),(-1,0,3,0,1)}
- E {(1,1,0,0,0),(1,0,-2,1,0),(0,-1,3,0,1)}

No more questions

RIGHT!

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Wrong...try again

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