Let

$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ 2 \\ -5 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} -1 \\ -1 \\ 1 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} 7 \\ 11 \\ -23 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} 3 \\ 6 \\ -15 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code $=$ (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

ColBasis 1   Indicating your answer by **underlining it** or **circling it**.   check code

Compute the **check code** and fill it into the **box on the right**.

Let

$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ 4 \\ 11 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} 5 \\ 20 \\ 55 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} -5 \\ -20 \\ -55 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} -5 \\ -19 \\ -53 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code = (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

ColBasis 2

Indicating your answer by **underlining it** or **circling it**.
Compute the **check code** and fill it into the **box on the right**.
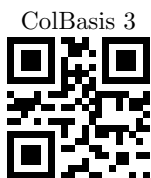
check code

Let

$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ -5 \\ 19 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} -5 \\ 26 \\ -98 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} -5 \\ 26 \\ -98 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} -6 \\ 31 \\ -117 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code = (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

ColBasis 3

Indicating your answer by **underlining it** or **circling it**.
Compute the **check code** and fill it into the **box on the right**.

check code

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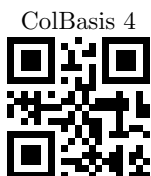Quiz 2   MATH 103 / GEAI 1215: Linear Algebra I

Let
$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ 5 \\ 18 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} -1 \\ -4 \\ -15 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} 0 \\ -4 \\ -12 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} 4 \\ 15 \\ 57 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code = (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

$\mathbf{v}_3 = -4\mathbf{v}_1 - 4\mathbf{v}_2$, so $k=3$. Sum $= -16$, check code $= 4$.

ColBasis 4   Indicating your answer by **underlining it** or **circling it**.   check code
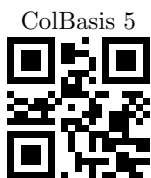Compute the **check code** and fill it into the **box on the right**.

Let

$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ 5 \\ -5 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} 3 \\ 15 \\ -15 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} 3 \\ 16 \\ -15 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} 18 \\ 95 \\ -90 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code = (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

ColBasis 5

Indicating your answer by **underlining it** or **circling it**.
Compute the **check code** and fill it into the **box on the right**.

check code

Let

$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ -5 \\ 2 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} 4 \\ -20 \\ 8 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} -3 \\ 16 \\ -6 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code = (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

ColBasis 6   Indicating your answer by **underlining it** or **circling it**.   check code
Compute the **check code** and fill it into the **box on the right**.

Let

$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ -5 \\ 25 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} -1 \\ 6 \\ -30 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} 1 \\ -10 \\ 50 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} 2 \\ -10 \\ 50 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code = (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

ColBasis 7   Indicating your answer by **underlining it** or **circling it**.   check code
Compute the **check code** and fill it into the **box on the right**.

Let

$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ 5 \\ 7 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} -3 \\ -14 \\ -19 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} -1 \\ -3 \\ -3 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} 11 \\ 50 \\ 67 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code = (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

ColBasis 8   Indicating your answer by **underlining it** or **circling it**.   check code
Compute the **check code** and fill it into the **box on the right**.

Let
$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ 0 \\ 4 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} -1 \\ 0 \\ -4 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} -5 \\ 1 \\ -25 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} -24 \\ 4 \\ -116 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code = (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

Indicating your answer by **underlining it** or **circling it**.
Compute the **check code** and fill it into the **box on the right**.

check code

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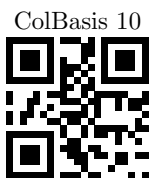Quiz 2   MATH 103 / GEAI 1215: Linear Algebra I

Let

$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ 4 \\ -14 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} -1 \\ -4 \\ 14 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} 3 \\ 13 \\ -46 \end{bmatrix}, \text{and } \mathbf{v}_4 = \begin{bmatrix} -8 \\ -35 \\ 124 \end{bmatrix}.$$

Find the vector $\mathbf{v}_k$ with the smallest k such that $\{\mathbf{v}_1, \ldots, \mathbf{v}_{k-1}\}$ is linearly independent but $\{\mathbf{v}_1, \ldots, \mathbf{v}_k\}$ is linearly dependent.

Check code = (sum of all entries of $\mathbf{v}_k$) mod 10

Solution.

Indicating your answer by **underlining it** or **circling it**.
Compute the **check code** and fill it into the **box on the right**.

check code