Started on	Friday, 23 April 2021, 4:15 PM
State	Finished
Completed on	Friday, 23 April 2021, 4:34 PM
Time taken	19 mins 5 secs
Grade	**10.00** out of 10.00 (**100**%)

Question 1

Correct

Mark 2.00 out of 2.00

Determine k such that the $(1, 3, 1)$, $(2, k, 0)$, $(0, 4, 1)$ are linearly dependent

Select one:

- a. $k = 2$
- b. $k = 1$
- c. $k = -1$
- d. $k = -2$ ✓

Your answer is correct.

The correct answer is: $k = -2$

Question 2

Correct

Mark 2.00 out of 2.00

If $\{\alpha, \beta, \gamma\}$ is a basis of a vector space V, then $\{\alpha+\beta, 2\alpha+3\beta+4\gamma, \alpha+2\beta+3\gamma\}$ is also a basis of V.

Select one:

- a. True ✓
- b. False

Your answer is correct.

The correct answer is: True

Question 3

Correct

Mark 2.00 out of 2.00

A linear mapping $T: R^3 \to R^2$ is defined by $T(x, y, z) = (2x + 2y + z, \frac{1}{2}(-x + y + 3z))$. Find the matrix of T related to the ordered bases $\{(1,1,0),(1,0,1),(0,1,1)\}$ of R^3 and $\{(1,1),(0,1)\}$ of R^2

Select one:

- a. $\begin{bmatrix} 4 & 4 & 4 \\ -4 & -2 & -1 \end{bmatrix}$
- b. $\begin{bmatrix} 4 & 3 & 3 \\ 4 & 2 & 1 \end{bmatrix}$
- c. $\begin{bmatrix} 4 & 3 & 3 \\ -4 & -2 & -1 \end{bmatrix}$ ✓
- d. $\begin{bmatrix} 3 & 3 & 3 \\ -4 & -2 & -1 \end{bmatrix}$

Your answer is correct.

The correct answer is: $\begin{bmatrix} 4 & 3 & 3 \\ -4 & -2 & -1 \end{bmatrix}$

Question 4

Correct

Mark 2.00 out of 2.00

The mapping $T : R^2 \to R^2$ is defined by $T(x, y) = (x^2 + 1, y)$, $(x, y) \in R^2$ is a linear mapping.

Select one:

- a. False ✓
- b. True

Your answer is correct.

The correct answer is: False

Question 5

Correct

Mark 2.00 out of 2.00

The spaces S is spanned by $(2, 0, 1), (3, 1, 0)$ and T is spanned by $(1, 0, 0), (0, 1, 0)$. Find $dim(S), dim(T)$ and $dim(S \cap T)$

Select one:

- a. $dim(S) = 2, dim(T) = 2$ and $dim(S \cap T) = 2$
- b. $dim(S) = 1, dim(T) = 1$ and $dim(S \cap T) = 1$
- c. $dim(S) = 1, dim(T) = 1$ and $dim(S \cap T) = 2$
- d. $dim(S) = 2, dim(T) = 2$ and $dim(S \cap T) = 1$ ✓

Your answer is correct.

The correct answer is: $dim(S) = 2, dim(T) = 2$ and $dim(S \cap T) = 1$