Kahoot!

MAT224 TUT0101/0102 Summer 2021, Kahoot#1

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A private kahoot

Questions (19)

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1 - Quiz

Let V be a vector space, v, w be vectors in V and k_1, k_2 be scalar in the field. The definition of V.S did not said …   60 sec

▲	v+w=w+v	✗
◆	k_1(w+v)=k_1w+k_1v	✗
⬤	vw=wv	✓
■	$k_1 k_2$w = $k_2 k_1$w	✗

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2 - Quiz

Let S = {v1, …, vn} be a linear independent set, which of the following statement is incorrect?   60 sec

▲	The equation a1v1+…+anvn=0 has only the trivial solution with all ai = 0	✗
◆	Then we know that a1v1+…+anvn = 0 and a1 = … = an = 0	✓
⬤	None of the vi can be written as linear combination of the other vectors.	✗
■	If one of the ai is not equal to 0, then a1v1+…+anvn=0 can not be true	✗

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3 - True or false

If {v,w} is a basis of a given a vector space V, then {kv, w} is also a basis for any scalar k.   20 sec

| ▲ | True | ✗ |
| ◆ | False | ✓ |

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4 - True or false

A set of vectors is linearly dependent if and only if one of the vector is a scalar multiple of another one vector   20 sec

| ▲ | True | ✗ |
| ◆ | False | ✓ |

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5 - True or false

If T is a linear transformation from V to W, then there exists a matrix A, such that T(v)=Av for any v in V.

20 sec

| ▲ | True | ✕ |
| ◆ | False | ✓ |

6 - True or false

If T is a linear transformation from R^n to R^m, then there always exists a matrix A, such that T(v) = Av for all v in R^n

20 sec

| ▲ | True | ✓ |
| ◆ | False | ✕ |

7 - True or false

If AB is invertible, then A is invertible and B is invertible

20 sec

| ▲ | True | ✕ |
| ◆ | False | ✓ |

8 - True or false

If AB is invertible, then A is invertible or B is invertible

20 sec

| ▲ | True | ✕ |
| ◆ | False | ✓ |

9 - Quiz

Let S = {v1, ..., vn} be a spanning set of the vector space V. Let v be a vector in V. It is not necessarily true that..

60 sec

▲	{v1, ..., vn, v} must be a linearly dependent set	✕
◆	v = a1v1 + ... + anvn for some a1, ..., an in the field.	✕
◯	Only one way to represent v as a linear combination of the vectors in S	✓
▢	span(S) is a subset of V	✕

10 - Quiz
Let T be a linear transformation from V to W, which of the following is not correct   60 sec

▲ $T(0_v) = 0_w$ ✕

◆ $T(v+w) = T(v) + T(w)$ for all v and w in V   ✕

⬤ $T(kv) = T(k)T(v)$ for all scalar k in the field and vector v in V   ✓

▢ For every v in V, there is only one unique $T(v)$ ✕

11 - True or false
Let V be a vector space and let v,w be vectors in V, let k be a scalar. Then if kv=kw, then v=w   20 sec

▲ True   ✕

◆ False   ✓

12 - True or false
A vector space may have more than one zero vector   20 sec

▲ True   ✕

◆ False   ✓

13 - True or false
If a set contains the zero vector, then it must be linearly dependent.   20 sec

▲ True   ✓

◆ False   ✕

14 - True or false
v1, ..., vn are linearly independent directly said a1v1+...+anvn=0 for some scalars a1, ..., an.   20 sec

▲ True   ✕

◆ False   ✓

15 - True or false

Assume a1v1+a2v2+a3v3=0 and v1,v2 are linearly independent, then a1v1+a2v2=0   20 sec

▲ True   ✕

◆ False   ✓

16 - True or false

Known M_4(R) is a vector space. The zero vector is the 4x4 matrix with all zero entries.   20 sec

▲ True   ✓

◆ False   ✕

17 - True or false

Known M_4(R) is a vector space. In the definition, one of the axiom said 1v=v. The 1 here is the   20 sec
4x4 identity matrix.

▲ True   ✕

◆ False   ✓

18 - Quiz

Known V = P_4(R) is a vector space, which of the following statement is correct?   60 sec

▲ 1+x is not a vector in V because it has only degree 1   ✕

◆ {1 , x} are linearly dependent vectors in V because we can pick x=-1   ✕

⬤ V has dimension 4, i.e. if S is a basis of V, then S has 4 elements.   ✕

◻ {1, 1+x, 1+x+x^2, 1+x+x^2+x^3, 1+x+x^2+x^3+x^4} is a spanning set of V   ✓

19 - Quiz

Consider the set of all complex number as a real vector space, call it V, which of the following   60 sec
statement is correct?

▲ The scalars are complex numbers   ✕

◆ {1, i} are linearly independent vectors in V   ✓

⬤ The zero vector in the definition of vector space is 0+i in V   ✕

◻ {1} is a spanning set of V   ✕

Resource credits

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