Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 1**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. List three elements and then show it is a vector space:

The set of linear polynomialsunder the usual polynomial addition and scalar multiplication operations.

1. Determine whether the following vectors in are linearly dependent or independent:

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 2**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix: .
3. List three elements and then show it is a vector space:

The set of linear polynomialsunder the usual polynomial addition and scalar multiplication operations.

1. Determine whether the following vectors in are linearly dependent or independent:

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 3**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix: .
3. List three elements and then show it is a vector space:

The set

1. Determine whether the following polynomials in are linearly dependent or independent:

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 4**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Show that the set under the operations inherited from is not a vector space.
4. Determine whether the following polynomials in are linearly dependent or independent:

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 5**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Show that the set under the usual matrix operations is not a vector space.
4. Decide whether each subset of is linearly dependent or linearly independent.

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 6**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Show that the set under the usual polynomial operations is not a vector space.
4. Determine whether the following polynomials in are linearly dependent or independent:

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 7**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Let V be the set of ordered pairs (a; b) of real numbers with addition in V and scalar multiplication on V defined by

Show that V satisfies all the axioms of a vector space except .

1. Determine whether the following polynomials in are linearly dependent or independent:

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 8**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Let be the set of ordered pairs of real numbers. Show that is not a vector space over with addition and scalar multiplication defined by
4. Suppose are linearly independent vectors. Prove that S is linearly independent where

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 9**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Let be the set of ordered pairs of real numbers. Show that is not a vector space over with addition and scalar multiplication defined by
4. Suppose are linearly independent vectors. Prove that S is linearly dependent where

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 10**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Let be the set of ordered pairs of real numbers. Show that is not a vector space over with addition and scalar multiplication defined by
4. Determine whether the following polynomials in are linearly dependent or independent:

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 11**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Let be the set of ordered pairs of real numbers. Show that is not a vector space over with addition and scalar multiplication defined by
4. Decide whether each subset of is linearly dependent or linearly independent.

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 12**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Show that is not a vector space. Under the operations inherited from , this set
4. Consider the polynomials and in . Is linearly dependent or independent?

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 13**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Show that is not a vector space. Under the usual matrix operations
4. Decide whether each subset of is linearly dependent or linearly independent.

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 14**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Show that is not a vector space. Under the usual polynomial operations,

where is the set of reals greater than zero.

1. Decide whether each subset of is linearly dependent or linearly independent.

Full name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**School of Mathematics and Cybernetics**

**Discipline: Linear Algebra for Engineers**

**Quiz 1, Total score – 10 points**

*Full solution of 1st and 3rd problems –3 points*

*Full solution of 2nd and 4th problems –2 points*

*Time – 50 minutes*

*Use of ancillary facilities is prohibited*

**Variant 15**

1. Solve the next system of linear equations by using Gauss method:
2. Find the reduced row echelon form of the matrix:
3. Show that is not a vector space. Under the inherited operations,
4. Decide whether each subset of is linearly dependent or linearly independent.