

**32980:**

**Task.**

Let

$T:U \rightarrow V$

be a linear transformation, where  $U$  and  $V$  are of the same finite dimension. Then the following but one statements are equivalent

$T$  is a homomorphism

$T$  is an isomorphism

$T$  is 1 - 1

$T$  is onto

**Solution.**

Isomorphism is a one-to-one relation onto the map between two sets, which preserves the relations existing between elements in its domain. Let  $T:U \rightarrow V$  be a linear transformation, where  $U$  and  $V$  are of the same finite dimension. Then  $T$  is an isomorphism. Thus, the statement “ $T$  is a homomorphism” is not true.

**Answer.** “ $T$  is a homomorphism” is the only non-equivalent statement.