**2013-2014第二学期线性代数试题B卷**

**一、判别对错题（每小题2分，共20分）**

**Mark each statement True or False.**

1. If a system has more than one solution, then so does the system . ( )

2. The equations  has the trial solution if and only if there are no free variables. ( )

3. If  and  are  matrices, then . ( )

4. If , then  is invertible. ( )

5. If  is a  matrix, then  . ( )

6. If an  matrix  is row equivalent to an echelon matrix , and if  has  nonzero rows, then the dimension of the solution space of  is . ( )

7. Similar matrices always have exactly the same eigenvalues. ( )

8. If  is an orthogonal set and are scalars, then  , } is also an orthogonal set. ( )

9. If  is an nonzero eigenvalue of invertible matrix , then is an eigenvalue of , and  ( )

10. If  is orthogonally diagonalizable, then  is symmetric. ( )

**二、填空题（每小题4分，共20分）**

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**三、计算题（每小题10分，共40分）**







4. Find a  factorization of 

**四、证明题（本题10分）**



**五、综合题（本题10分）**



