Math 2318 – Linear Algebra ***Exam* 4** ***Review***

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1. Find the standard matrix for the operator *T* defined by the formula
2. 
3. 
4. Find the characteristic equation, eigenvalues, and eigenvectors of 
5. Find the characteristic equation, eigenvalues, and eigenvectors of 
6. Find the eigenvalues, and eigenvectors of 
7. Find the characteristic equation, eigenvalues, and eigenvectors of 
8. Find the characteristic equation, eigenvalues, and eigenvectors of 
9. Find a matrix *P* that diagonalizes 
10. Let , determine when *A* is diagonalizable, not diagonalizable. (*Hint: discriminant of the characteristic equation*)
11. Show that and  are not similar matrices
12. Show that the matrix  is not diagonalizable
13. Show that the function  given the formula  is linear transformation
14. Determine whether the function  is linear transformation

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1. Consider the basis for , where  and let  be the linear transformation for which



Find a formula for , and then use that formula to compute 

***Solution***

1.  
2.   
3.   
4.   
5.   
6.   
7. 
8. 
9. 
10. 
11.  repeated eigenvalues therefore is not diagonalizable
12. Let 

















Since  and , then function *T* is a linear transformation.

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| ***√***          ***√***              It is not a linear transformation |
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1. 

