*Problems*

1. Find the inverse of the function *f(x)=(1+x)/x*
2. *When f(x)=x+2*, və *g(x)=x-2* find ***fog*** and ***gof***
3. Find the domain of the function 
4. Let f(x) = 2x + 3 and  g(x) = –7/x + 5 Find *(g o f )(1)*
5. Find the range of  f(x) = | x - 2 | + 3
6.
7. Find the cosine of angle between vectors u = ( 2, 5 ) and v = ( - 4, 2 )
8. u = (12, 7 ) and v = (- 4, 5 ) find 3u + 4v
9. u = (11, 2 ) and v = (- 3, 5 ) find |5v - 2u|
10. Find the vector which is in the same direction with vector

 w = ( - 3, 5 ).

1. Calculate the product of vectors u = ( 13, 7 ) and v = ( - 5, 2 ).
2. . Find matrix 3A-2B.
3.
4. .
5. Find the Eugene values of linear transformation of matrix
6. Find the Eugene vectors of linear transformation of matrix
7.
8. Prove that the sequence is convergent.
9. Prove that sequence is a bound sequence.
10. Prove that sequence is a monotonous sequence.
11. Find the limit
12. Find the limit
13. Find the limit
14. Prove that function is not differentiable at point x=0
15. Find the derivative of function
16. Find the *n*th order derivative of function
17. Calculate if
18. Find the differential of function
19. Find
20. Calculate the limit applying L’Hospital rule
21. Calculate the limit applying L’Hospital rule
22. Expand the polynomial in regards of degrees of (x-4) (*Hint*: Taylor formula)
23. Derive the Maclaurin formula for polynomial of *n*th degree in general form.
24. Write the Taylor expansion of *n*th degree of function when x=0
25. Find the intervals where function is decreasing and increasing
26. Find the intervals where function is decreasing and increasing
27. Find the local extrema of function is decreasing and increasing
28. Find the least and the biggest values of function segment
29. Find the local extrema of function
30. Find the integral ;
31. Find the integral ;
32. Find the integral applying the substitution
33. Find the integral applying the method of substitution ;
34. Substitute in the integral and find it (t=arctgx);
35. Use the method of integration by parts to find integral ;
36. Use the method of integration by parts to find integral ;
37. Calculate the integral ;
38. Calculate the integral ;
39. Calculate the integral ;
40. If ;
41. Calculate integral using method of integration by parts ;
42. Find the value of function *f*(x,y)= at point M (3;-1);
43. Find the domain of function
44. Prove that does not exist;
45. Prove that does not exist;
46. Find the iterated limit ;
47. Find the iterated limit ;
48. Find the differential *du* of function ;
49. Find the second order differential of function ;
50. Find all second order partial derivatives of function ;
51. Find the extrema of function
52. Find the extrema of function
53. Find the constrained extrema of function
54. Find the constrained extrema of function