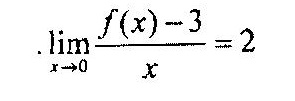
Course no. 66-110

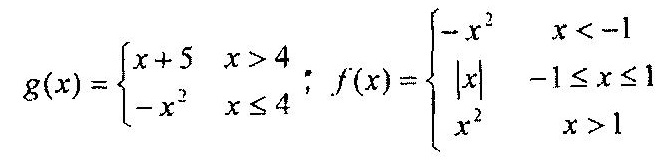
Subject: Mathematics for economists

Duration of the exam: two and a half hours

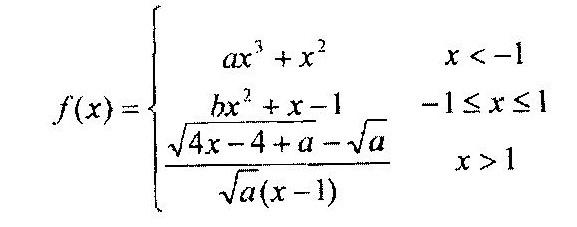
1. Express your opinion and explain each of the following claims:

|  |  |
| --- | --- |
| A.  B.  C. | 025.jpg |

1. The equation *x*3 + 4*x* – 1 = 0 has one solution.
2. If *f*(*x*) is continuous and differentiable at point *x* = 0, and if *f*’(0) = 2 and *f*(0) = 3, then 
3. The function 027.jpg fulfills *f*’(0) = 0.
4. The function 028.jpgreceives the value zero in the section (0,2).

2. Given the function 

1. Determine and explain whether function *f*(*x*) is even, odd, or other.
2. Is *g*(*x*) an injective (one-on-one) function? If so, calculate its inverse function.
3. Calculate *f*(*g*(*x*)).

3. Given the function:

What must a and b be so that the function will be continuous at every point?

4. Calculate the following limits:

|  |  |
| --- | --- |
| A.  B. | 031.jpg |

3. Differentiate the following functions:

|  |  |
| --- | --- |
| A.  B. | 033.jpg |

**GOOD LUCK!**