University of DJilaly Bounaama – khmis meliana - University
Faculty of Economic, Commercial and Management Sciences
First Year Bachelor's Degree - Joint Trunk -

Year: 2024/2023
Scale: Mathematics 1
Branch: 2

Series No. 04: derivatives

Exercise 01: Let the f function be as follows :

$$f(x) = \begin{cases} 1 + x\sqrt{x} & : si x \geq 0 \\ 1 + \ln(1 + x^2) & : si\ x < 0 \end{cases}$$

1. Find the definition area of the f . Function.
2. To study the derivability of the f ‘ function is f' continue?
3. Apply, if possible, the terminated f Apply, if possible, the terminated $[-1;1]$.

Exercise 02:

Create critical and maximum values for the following functions:

$$g(x)=\frac{x}{x^2+1} \quad ; \quad f(x)=(x-1)^2(x+1)$$

Exercise 03:

:Derivatives from Class 2 have been identified for the following functions

$$g(x)=\frac{1}{2-x} \quad ; \quad h(x)=x^3(x+1)^2 \quad ; \quad f(x)=\sqrt{x^2-4}$$

Exercise 04:

n Derivatives for the following functions were identified:

$$f_1(x) = x^4 + x^3 ; f_2(x) = xe^{ax} ; f_3(x) = x^2 ln(x)$$

Exercise 05:

Let the *f* function be as follows:

$$f: x \to [x; x+1] \qquad [x; x+1] \subset \mathbb{R}_+^*$$
$$f: x \to \ln x$$

Using the terminated augmentation theory between:

$$\frac{1}{x+1} < \ln(x+1) - \ln x < \frac{1}{x}$$