

Name and surname:

U number:

Calculus I - MAC 2311 - Section 003

Quiz 3

09/26/2018

Instructions: The total number of points of this quiz is 12, but your grade will be the minimum between your score and 10. You will get an extra point if you solve correctly the last exercise.

1) [10 points] For each of the following functions compute its derivative:

a) $f(x) = x^{10} - \frac{3x^5}{5} - \frac{3}{x^3} + \sqrt[4]{x^3}$

b) $\frac{d}{dt} [t^5 \sin(t)] =$

c) $f(\theta) = \tan(2 \cos(\theta) + \sqrt{\theta})$.

d) $f(u) = \frac{u + 1 + \sin(7u)}{u^2}$.

e) $f(x) = (\sin(\sqrt[3]{x}))^2$.

2) [2 point] Consider the following piecewise defined function:

$$f(x) = \begin{cases} \frac{1}{x+2} & \text{if } x < -3 \\ x^2 + 3x - 1 & \text{if } x \geq -3 \end{cases}$$

Is f continuous at $x = -3$? Justify your answer.

3) Compute the following derivative:

$$\frac{d}{dx} [k \cos(kx) + k],$$

where k is a constant.