Name and surname:

U number:

Calculus I - MAC 2311 - Section 007
Quiz 6
11/02/2017

1) Compute the following limit:

$$\lim_{x \to 0} \left(x^3 + 1\right)^{\frac{1}{x^2}}.$$

2) a) State Fermat's theorem.

b) Give the definition of a critical point of a function f.

c) Find the absolute maximum and minimum values of the function
$$f(x) = -2x^3 - 3x^2 + 12x + 5$$
on the closed interval $[-3, 3]$.

Organize your solution in the following steps:
- Find the critical numbers of f and their corresponding values.
- Find the values of f at the endpoints of the interval $[-3, 3]$.
- Compare the values obtained in step 1 and step 2 and return the absolute maximum and the absolute minimum values of f.