Name and surname:

U number:

Calculus I - MAC 2311 - Section 001
Quiz 6
03/21/2018

Instructions: The total number of points of this quiz is 12, but your grade will be the minimum between your score and 10.

1) [2 points] Simplify the expression $\sin\left(\tan^{-1}(3x)\right)$.

2) [2 points] Compute the derivative of $x^2 \cdot \arcsin(3x^2)$.

3) [2 points] Prove that $\frac{d}{dx}\left[\arcsin(x)\right] = \frac{1}{\sqrt{1-x^2}}$.

4) [6 points] Compute the following limits:

a) $\displaystyle \lim_{x \to \frac{\pi}{2}} \frac{1 - \sin(x)}{\cos(x)}$

b) $\displaystyle \lim_{x \to \infty} x^3 e^{-x^2}$

c) $\displaystyle \lim_{x \to \infty} x^{\frac{1}{x}}$