MAT 201 Quiz 13

Apr. 23, 2020

1. $\boxed{22}$ Use implicit differentiation to find dy/dx if $y = \sin(xy)$. Show all work.

2. $\boxed{23}$ Let $f(x) = 2x^3 - 6x$. Find all the **local** maximum and minimum using either the first derivative test or the second derivative test. Leave your answer exact. Show all work.

3. [24] Let $f(x) = xe^{-2x}$. Find the **global** maximum and minimum on the interval $[0, 1]$. Leave your answer exact. Show all work.

4. [25] Biker B is 350 meters east of Biker A. Biker A starts to riding south at a rate of 5 meters per second. 7 minutes later, Biker B starts riding north at 3 meters per second. At what rate is the distance separating the two bikers changing 25 minutes after Biker A starts riding? Include all necessary pictures and show all work. Round your answers in at least **four** decimal splaces.