Name ________________________________

(circle your TA discussion section)

- AD1, TR 11:00-12:50, Melinda Lanius
- AD2, TR 9:00-10:50, Ben Fulan
- AD3, TR 1:00-2:50, Mychael Sanchez
- ADA, TR 8:00-8:50, Derek Jung
- ADB, TR 9:00-9:50, Derek Jung
- ADC, TR 10:00-10:50, Andrew McConvey
- ADD, TR 11:00-11:50, Andrew McConvey
- ADE, TR 12:00-12:50, David Poole
- ADF, TR 1:00-1:50, Alonza Terry
- ADG, TR 2:00-2:50, Alonza Terry
- ADH, TR 3:00-3:50, Argen West
- ADI, TR 4:00-4:50, Argen West
- ADJ, TR 9:00-9:50, Vanessa Rivera-Quiñones
- ADK, TR 10:00-10:50, Vanessa Rivera-Quiñones
- ADL, TR 11:00-11:50, David Poole
- ADM, TR 12:00-12:50, Iftikhar Ahmed
- ADN, TR 1:00-1:50, Kaiwen Liu
- ADO, TR 2:00-2:50, Hannah Burson
- ADP, TR 3:00-3:50, Hannah Burson
- ADR, TR 9:00-9:50, Stephen Berning
- ADS, TR 12:00-12:50, Sarah Mousley
- ADT, TR 2:00-2:50, Kaiwen Liu
- ADU, TR 3:00-3:50, Iftikhar Ahmed

- You may work with other MATH 220 students. However each student should write up solutions separately and independently – nobody should copy someone else’s work.
- You may use your notes, the textbook, or information found on my course home page.
- You may use a calculator only for basic arithmetic. In particular you should not use its graphing features.
- You are not allowed to search the Internet, use Wolfram Alpha, or use technology for anything beyond what is stated above.
- There is a higher expectation for the quality of your work on a take-home quiz. Everything should be written logically and legibly with sufficient work to justify each answer. Blank copies of the quiz are available on the course home page.
- Be sure that the pages are nicely stapled – do not just fold the corners.
- The quiz is due at the beginning of your official lecture period on Friday, October 17.
- Note to TAs and Tutors – you should not help students with these specific problems or go over solutions until after 5pm Friday.
1. (2 points) Evaluate \[ \lim_{x \to \infty} \left( 1 + \frac{2}{3x^2} \right)^{6x^2} \]
2. (3 points) For each \( x > 0 \), let \( m(x) \) be the slope of the line which goes through the point \((0, 0)\) and the point \((x, y)\) on the curve \( y = x^2 e^{-0.25x} \).

What is the largest possible value for \( m(x) \)?
3. (3 points) What are the coordinates \((x, y)\) for the highest point on the graph of the function 
\[ f(x) = \frac{e^{6x}}{e^{9x} + 4} \] ?
4. (2 points) Complete the sentences concerning the function \( f(x) = 3 + 4xe^{-5x} \).

(a) The function \( f \) is decreasing on the interval \( \text{ } \) \\
(b) The function \( f \) is increasing on the interval \( \text{ } \) \\
(c) The function \( f \) is concave down on the interval \( \text{ } \) \\
(d) The function \( f \) is concave up on the interval \( \text{ } \)