Name _____

(circle your TA discussion section)

▷ **AD1**, TR 11:00-12:50, Adriana Morales   ▷ **ADJ**, TR 9:00-9:50, Gayana Jayasinghe
▷ **AD2**, TR 9:00-10:50, Hannah Burson   ▷ **ADK**, TR 10:00-10:50, Madina Bolat
▷ **AD3**, TR 1:00-2:50, Dana Neidinger   ▷ **ADL**, TR 11:00-11:50, Chris Loa
▷ **ADA**, TR 8:00-8:50, Gayana Jayasinghe   ▷ **ADM**, TR 12:00-12:50, Heeyeon Kim
▷ **ADB**, TR 9:00-9:50, Felix Clemen   ▷ **ADN**, TR 1:00-1:50, Josh Wen
▷ **ADC**, TR 10:00-10:50, Lutian Zhao   ▷ **ADO**, TR 2:00-2:50, Kesav Krishnan
▷ **ADD**, TR 11:00-11:50, Gidon Orelowitz   ▷ **ADQ**, TR 10:00-10:50, Felix Clemen
▷ **ADE**, TR 12:00-12:50, Josh Wen   ▷ **ADR**, TR 9:00-9:50, Madina Bolat
▷ **ADF**, TR 1:00-1:50, Nachiketa Adhikari   ▷ **ADS**, TR 12:00-12:50, Chris Loa
▷ **ADG**, TR 2:00-2:50, Lutian Zhao   ▷ **ADT**, TR 2:00-2:50, Nachiketa Adhikari
▷ **ADH**, TR 3:00-3:50, Stathis Chrontsios   ▷ **ADU**, TR 3:00-3:50, Kesav Krishnan
▷ **ADI**, TR 4:00-4:50, Stathis Chrontsios   ▷ **ADZ**, TR 9:00-9:50, Gidon Orelowitz

- You may lose points if you do not circle your correct discussion section.

- 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 including old test and quiz solutions.

- You are not allowed to use a calculator, Wolfram Alpha, or any similar technology.

- 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 discussion period on Tuesday, November 6th.**

- **TAs and Tutors – Do not help students with these specific problems until all discussion sections have turned in the quiz.**

1. (2 points) Find a formula for $f(x)$ given that $f''(x) = 5e^x + 2\sin(x) + 6$, $f(0) = 9$ and $f'(0) = -11$.

2. (2 points) Evaluate the following limit. Use proper notation in your evaluation of this limit.

$$\lim_{n \to \infty} \sum_{k=1}^{n} \frac{6nk - 12k^2}{n^3}$$

3. (2 points) From section 5.2 we have the following property of definite integrals.

- If $f(x)$ and $g(x)$ are continuous and $f(x) \geq g(x)$ for $a \leq x \leq b$, then $\int_a^b f(x)\, dx \geq \int_a^b g(x)\, dx$

Use this property to carefully explain why the following inequality holds.

$$0.75 \leq \int_1^2 \frac{5 + 3\sin\left(4e^x\right)}{x^3}\, dx \leq 3$$

4. (2 points) Express the definite integral as the limit of Riemann sums. Do not evaluate the limit.

$$\int_{-3}^{5} x^2 e^{\sin(x)} \, dx$$

5. (2 points) Fill in the missing information from the second sum so that the equality holds. Do not evaluate the sum.

$$\sum_{k=5}^{n-1} k \ln(k) = \sum_{j=1}$$