Final Exam Essay Questions

On the day of your exam, I will randomly choose 7 of these 11 questions. You will have to write on 5 of the 7 chosen problems.

1. Discuss Babylonian mathematics, including the tablet YBC 7289.
2. Discuss the Rhind and Moscow papyri, including some of the math they contained.
3. Discuss the origins of mathematical proofs, from the first proof in history through Euclid's revolution.
4. Discuss the history of trying to find a general formula to solve polynomial equations, beginning with al-Khwarizmi and ending with Galois.
5. The Kerala School in southern India did some influential work. Discuss this, including the work of Madhava of Sangamagrama.
6. Show how Isaac Newton would have taken the derivative of $2x^2 + 3x + 1$. (Note: The polynomial will change on the day of the exam, but it will be of the form $ax^2 + bx + c$.)
7. Pick any mathematician below. Write what we know about them (or at least, what we think we know) and about their place in math history.

   (a) Archimedes (b) Euclid (c) Liu Hui

8. Pick any mathematician below. Write what we know about them (or at least, what we think we know) and about their place in math history.

   (a) Emmy Noether (b) Leonhard Euler (c) Ramanujan

9. Write a broad summary of the math history that we covered in this class. This should be a general summary of the major topics, trends and themes, it should not get into the little details. It should be maybe 300-500 words long. (I won't be counting, this is just to give you a sense of the level of detail required.)
10. What was your favorite topic in Math 190? Discuss the topic and why you liked it.
11. Who was your favorite mathematician that we discussed in Math 190? Why are they your favorite? (If you also answer question 8 or 9 on this exam, write about someone different than who you wrote about on that/those questions.)