1. Write down the general form of a geometric series and what it converges to. Be sure to be specific about any restrictions.

2. Explain what the integral test is, how we use it and draw a picture to show why it works. A specific example might help.

3. What is \( \int_{1}^{\infty} \frac{1}{x^k} \, dx \)? Make up a series question that can use this result.
4. What is the harmonic series? Does it converge or diverge? Why or why not?

5. What is the direct comparison test? Make up (i.e. do not consult your notes) two problems that use the direct comparison test, one where the series converges and one where the series diverges.

6. What is the limit comparison test (it has 3 different parts)? Explain why each part is true. Make up a different problem for each part of the limit comparison test.