The goal of this examination is to demonstrate that you know the main concepts and theorems of the course.

1. For each of the following mathematicians, state a theorem from this course named for that person.



Jacques Hadamard (1865–1963)



Émile Picard (1856–1941)



Johan Jensen (1859–1925)



Carl Runge (1856–1927)



G. Mittag-Leffler (1846–1927)



Karl Weierstrass (1815–1897)

- 2. Define the genus and the order of an entire function. Give a concrete example of an entire function whose genus is different from its order.
- 3. Define the notion of analytic continuation of a function element along a curve. State the monodromy theorem.
- 4. State three properties of a domain in $\mathbb C$ each of which is equivalent to simple connectivity of the domain.
- 5. For *one* of the following, make a sketch of what the output of the Maple command should be.
 - (a) plot(GAMMA(x), x=-3..3, y=-10..10);
 - (b) plot(Zeta(x), x=-3..3, y=-10..10);
- 6. What is your favorite theorem from this course? Why?