Each problem is worth zero points. It’s a fake quiz, after all.

1. Give a function (if one exists) which is continuous but not differentiable.

2. Give a function (if one exists) which is differentiable but not continuous.

3. Name two sequences which diverge, but whose sum converges.

4. What’s the limit of the function \( f(x) = \frac{1}{x} \) as \( x \) approaches infinity? How do you know?

5. How many prime numbers are there? How do you know?