Name:

Exercise 1. Show, that the following series diverges:

$$\sum_{n=1}^{\infty} \frac{1}{3n-1}.$$

Solution:

Exercise 2. Find the radius of convergence of the power series:

$$\sum_{n=0}^{\infty} \frac{x^n}{n!}.$$

Solution:

Exercise 3. Compute the limit:
$$\lim_{x \to 0^+} \frac{x - \sqrt{x}}{\sqrt{x}}.$$

Solution:

Exercise 4. Compute the limit:

$$\lim_{x \to 5} \frac{x^2 - 6x + 5}{x - 5}.$$

Solution:

Exercise 5. Find the parameters a and b for which the following function is continuous:

$$f(x) = \begin{cases} -a\,x + b & : & x < -1, \\ 3 - x^2 & : & -1 \le x \le 2, \\ a\,x + b & : & x > 2. \end{cases}$$

Solution:

Exercise 6. Find the derivative of the function:

$$f(x) = (x^2 + 2x + 3)(x^3 - 2x^2 + x + 2).$$

Solution: