Full name:_____ **Student number:**_____   **Total:** ____ / *10 pts.*

(1) Find the Taylor series of the function
$$f(x) = \frac{1}{x+1}$$
centered at $a = 1$, and its radius of convergence.

(2) Find the sum of the series
$$\sum_{n=1}^{\infty} (-1)^{n-1} \frac{1}{n2^n}.$$
Hint: Consider the integral of the function in part (1).

Solution.