# Quiz 2 Math 5201, Autumn 2020

**Problem 1.** For $z \in \mathbb{R}$, determine the radius of convergence of the following series.
(a)

$$\sum_{n=1}^{\infty} \frac{zn!}{5^n}$$

(b)

$$\sum_{n=1}^{\infty} \frac{z^n}{n^z}$$

**Problem 2.** (hint: be careful with the start and end points)
(a) Compute

$$\sum_{n=1}^{\infty} \frac{1}{5^n}$$

(b) Compute

$$\sum_{k=0}^{N} \frac{1}{5^{k+10}}$$

**Problem 3.** Prove that if a series converges absolutely, then it converges conditionally.