Seminar 3. Serii cu termeni pozitivi.

EXERCIŢII PROPUSE

1. Studiaţi convergenţa următoarelor serii:

   (a) $\sum_{n=1}^{\infty} \frac{1}{7^n+3^n}$

   (b) $\sum_{n\geq 1} \frac{1}{\sqrt{n(n+1)(n+2)}}$

   (c) $\sum_{n\geq 0} \frac{1}{n+3^n}$

   (d) $\sum_{n\geq 1} 2^n \sin \frac{1}{3^n}$

2. Studiaţi convergenţa seriilor:

   (a) $\sum_{n\geq 0} \frac{a^n}{n!}, \quad a > 0$

   (b) $\sum_{n\geq 1} \frac{n!}{n^n}$

   (c) $\sum_{n\geq 1} \frac{n!}{(a+1)(a+2)\ldots(a+n)}, \quad a > -1$

   (d) $\sum_{n\geq 1} \left(\frac{n}{2n-1}\right)^n$

   (e) $\sum_{n\geq 1} \frac{\sin^n a}{n}, \quad a \in \left(0, \frac{\pi}{2}\right)$

   (f) $\sum_{n\geq 1} n \cdot 2^n$

   (g) $\sum_{n\geq 1} \frac{(2\cdot e)^n}{(1+\frac{1}{n})^{n^2}}$

   (h) $\sum_{n\geq 1} \frac{n^\alpha}{n!} a^n, \quad a \geq 0, \quad \alpha > 0$

3. Studiaţi convergenţa următoarelor serii:

   (a) $\sum_{n\geq 1} \frac{\ln n}{n}$

   (b) $\sum_{n\geq 2} \frac{1}{n \ln n}$