

Übungen in Analysis  $\diamond$  Exercices en Analyse  $\diamond$  T. II  $\diamond$  II / 13

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**Probl. 1** Konvergenz? — Grenzwert, falls möglich? • *Convergence? — Valeur limite, si possible?*

(a)  $\sum_{k=1}^{\infty} 4 * \left(\frac{1}{3}\right)^{k-1} + 3 * \left(\frac{1}{4}\right)^{k-1}$

(b)  $\sum_{k=1}^{\infty} \frac{(1 + k + k^2 + k^3)}{(1 + k + k^2 + k^3 + k^4 + k^5)}$

(c)  $\sum_{k=1}^{\infty} (-1)^k \frac{1}{k}, \quad \sum_{k=1}^{\infty} (-1)^k \frac{1}{2k+1}$

(d)  $\sum_{k=1}^{\infty} \left(\frac{1}{3(1+k)}\right) - \left(\frac{1}{3(4+k)}\right)$

(e)  $\sum_{k=0}^{\infty} (4x)^k$

(f)  $\sum_{k=0}^{\infty} \frac{2^k}{k!}$