

Übungen in Analysis  $\diamond$  Exercices en analyse  $\diamond$  T. B2  $\diamond$  I / 13

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**Probl. 1**  $\langle a_n \rangle = \left\langle \frac{\sin^2 \varphi + \cos^2 \varphi + 3n}{4n} \right\rangle \quad \rightsquigarrow a_n \rightarrow ?, \quad \lim_{n \rightarrow \infty} a_n = ?$

**Probl. 2**  $\langle a_n \rangle = \left\langle \frac{6n^3 - 5n^2 + 2n - 6 + \frac{1}{n}}{2n^3 - 4n + 7 + \frac{8}{n^2}} \right\rangle \quad \rightsquigarrow a_n \rightarrow ?, \quad \lim_{n \rightarrow \infty} a_n = ?$

**Probl. 3**  $\langle a_n \rangle = \left\langle \frac{\cos^2(n) - \sin^3(n^2 - 4n + 1) + 8}{n^2 - \sin(\tan(n))} \right\rangle \quad \rightsquigarrow a_n \rightarrow ?, \quad \lim_{n \rightarrow \infty} a_n = ?$

**Probl. 4**  $\lim_{n \rightarrow 1} \frac{x^2 - 1}{x - 1} = ?$

**Probl. 5**  $\lim_{n \rightarrow 1} \frac{x^3 - 1}{x - 1} = ?$

**Probl. 6**  $\lim_{n \rightarrow 0} (x^2 - x) \cdot \frac{\sin(x)}{x^2 \cdot \cos(x)} = ?$

**Probl. 7**  $\lim_{n \rightarrow 0} \left( \frac{\tan(x)}{x} + (x - 1) \cdot (x + 1) \right) = ?$