(1) Calcule, caso exista, $\lim\limits_{n \to \infty} x_n$, com x_n igual a:

(a) $\dfrac{n^3 + 3n + 1}{4n^3 + 2}$

(b) $\sqrt{n+1} - \sqrt{n}$

(c) $\operatorname{sen} \dfrac{1}{n}$

(d) $\displaystyle\int_1^n \dfrac{1}{x}\, dx$

(e) $\left(1 + \dfrac{2}{n}\right)^n$

(f) $\displaystyle\sum_{k=0}^{n} \dfrac{1}{2^k}$

(g) $\dfrac{\operatorname{sen} n}{n}$