

TEOREMA DE MEDIE PENTRU INTEGRALE

Găsiți valoarea medie pentru:

1) a) $f: [0; \pi] \rightarrow \mathbb{R}$, $f(x) = \sin x$

b) $f: [0; \frac{\pi}{3}] \rightarrow \mathbb{R}$, $f(x) = \tan x$

2) a) $f: [0; \frac{\pi}{2}] \rightarrow \mathbb{R}$, $f(x) = \sin x + \cos x$

b) $f: [1; e] \rightarrow \mathbb{R}$, $f(x) = \ln x$

3) a) $f: [0; 1] \rightarrow \mathbb{R}$, $f(x) = x^2$

b) $f: [-1; 1] \rightarrow \mathbb{R}$, $f(x) = \frac{1}{1+x^2}$

Calculați:

4) $\lim_{n \rightarrow \infty} n^4 \cdot \int_n^{n+1} \frac{x dx}{1+x^5}$

5) $\lim_{n \rightarrow \infty} \int_n^{n+1} e^{-x^2} dx$

6) $\lim_{n \rightarrow \infty} \int_{\frac{1}{n+1}}^{\frac{1}{n}} \frac{\sin x}{x^2} dx$

7) $\lim_{n \rightarrow \infty} \int_n^{n+1} \frac{\ln x}{x^2+1} dx$

8) $\lim_{n \rightarrow \infty} \int_0^{\frac{\pi}{6}} \sin^n x dx$

9) $\lim_{n \rightarrow \infty} \int_0^{\frac{1}{3}} \frac{x^n}{x^2+1} dx$

10) $\lim_{n \rightarrow \infty} n^2 \cdot \int_{n-1}^n \frac{x^2 dx}{x^4+x}$