

مثالها

مثال) انتگرالهای زیر را محاسبه نمائید .

$$7) I = \int_{\frac{1}{3}}^1 \left[\frac{1}{x} \right] \frac{1}{x^2} dx$$

$$8) I = \int_0^2 (x[\sin \pi x] + [x] \sin \pi x) dx$$

$$9) I = \int_0^3 \sin \pi (x - [x]) dx$$

$$10) I = \int_0^n \cos \pi (x - [x]) dx \quad , \quad (n \in \mathbb{Z})$$

$$11) I = \int_0^2 x \operatorname{Arctan}[x] dx$$

$$12) I = \int_0^2 ([x] + \sqrt{x - [x]}) dx$$

$$13) I = \int_0^n ([x] + \sqrt{x - [x]}) dx \quad , \quad n \in \mathbb{N}$$

$$14) I = \int_{-2}^2 [x] \max\{|x|, 2 - |x|\} dx$$

$$15) I = \int_1^2 x^2 \left[\frac{1}{x^2} \right] dx$$

$$16) I = \int_a^b [x] dx + \int_a^b [-x] dx \quad ; \quad x \notin \mathbb{Z}$$

$$17) I = \int_0^{\sqrt{3}} ([x] + [-x]) dx$$

$$18) I = \int_0^{2\pi} (\sin x - [\sin x]) dx$$

$$19) I = \int_0^2 \cos \pi [x] dx$$

$$20) I = \int_{\frac{1}{4}}^{\frac{1}{2}} \tan \pi (x - [x]) dx$$

$$21) I = \int_0^2 (2[x] - \cos \pi (x - [x])) dx$$

$$22) I = \int_{-1}^1 \operatorname{Arc} \cos [x] dx$$

$$23) I = \int_1^3 x \sin \pi \frac{[x]}{2} dx$$

$$24) I = \int_{\frac{1}{2}}^1 \left[\frac{1}{x} \right] \frac{dx}{x^3}$$

$$25) I = \int_0^9 x^2 [\sqrt{x}] dx$$

$$26) I = \int_{\frac{\pi}{6}}^{\frac{\pi}{2}} \left[\frac{1}{\sin x} \right] dx$$

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$$27) I = \int_{-2}^2 [|x|] dx$$

$$28) I = \int_{-2}^2 [|x|] dx$$

$$29) I = \int_0^2 e^{[x]} dx$$

$$30) I = \int_{\frac{2}{\pi}}^{\frac{6}{\pi}} \left[2 \sin \frac{1}{x} \right] \frac{dx}{x^2}$$

$$32) I = \int_{-4}^4 x^2 [\sqrt{|x|}] dx$$

$$31) I = \int_{[x]}^x [x] dx \quad ; \quad x \notin \mathbb{Z}$$