Primjeri:

Koristeći osobine odredjenih integrala ,izračunati odredjene integrale :

a) $\int_0^{\frac{1}{2}} \frac{6dx}{\sqrt{1-x^2}}$ **. Ovdje ćemo koristiti osobinu 2. odredjenog integrala :**

$\int_a^b k \cdot f(x)dx = k \cdot \int_a^b f(x)dx$; **k=6, ,f(x) =** $\frac{1}{\sqrt{1-x^2}}$ **.**

$\int_0^{1/2} \frac{6dx}{\sqrt{1-x^2}} = \int_0^{1/2} \frac{6\cdot 1\cdot dx}{\sqrt{1-x^2}} = \int_0^{1/2} 6 \cdot \frac{1}{\sqrt{1-x^2}} \cdot dx = 6 \cdot \int_0^{\frac{1}{2}} \frac{1}{\sqrt{1-x^2}} \cdot dx = 6 \cdot I$

..............(1) , gdje je I= $\int_0^{1/2} \frac{1}{\sqrt{1-x^2}}$ **dx.**

Sada računamo integral I (po Njutn-lajbnicovoj formuli :

$\int_a^b f(x)dx = [F(x)]_a^b$ **= F(b) – F(a)) ,**

I= $\int_0^{1/2} \frac{1}{\sqrt{1-x^2}}$ **dx =** $[\arcsin x]_{x=0}^{x=1/2}$ **= arcsin** $\frac{1}{2}$ **– arcsin 0 =** $\frac{\pi}{6} - 0 = \frac{\pi}{6}$ **. (** $\int \frac{1}{\sqrt{1-x^2}}$ **dx = arcsinx +C, F(x)=arcsinx).(F(b)=F(1/2) =arcsin ½ =** $\frac{\pi}{6}$ **, F(a)=F(0) =arcsin 0 =0 ,F(b)-F(a)=** $\frac{\pi}{6}$ **-0 =** $\frac{\pi}{6}$ **).**

Iz (1) imamo da je polazni-dati integral: $\int_0^{1/2} \frac{6dx}{\sqrt{1-x^2}} = 6 \cdot I = 6 \cdot \frac{\pi}{6} = \pi$.