

ALİŞTIRMALAR I

1.

Aşağıdaki integralleri hesaplayınız.

$$\begin{array}{lll} \text{a)} \int e^{5-2x} dx & \text{b)} \int \cos(ax+b) dx & \text{c)} \int \sqrt{3x+4} dx \\ \text{d)} \int e^{2x} \sin(e^{2x}) dx & \text{e)} \int \frac{x^2}{(x^3-2)^{\frac{5}{2}}} dx & \text{f)} \int \frac{\sin(\sqrt{x})}{\sqrt{x}} dx \\ \text{g)} \int \frac{x}{(4x^2+1)^5} dx & \text{h)} \int x^2 2^{x^3-1} dx & \text{i)} \int x e^{x^2} dx \\ \text{j)} \int \frac{x^2 dx}{2+x^6} & \text{k)} \int \frac{\cos x}{4+\sin^2 x} dx & \text{l)} \int \frac{ds}{\sqrt{4-5s}} \\ \text{m)} \int \frac{t}{\sqrt{4-t^4}} dt & \text{n)} \int \frac{dx}{e^x + e^{-x}} & \text{o)} \int \frac{ax-b}{\sqrt{A^2-B^2x^2}} dx \\ \text{p)} \int \frac{dx}{\sqrt{4-2x-x^2}} & \text{q)} \int \tan x \ln(\cos x) dx & \text{r)} \int \frac{2t+3}{t^2+9} dt \\ \text{s)} \int \frac{dx}{x^2+6x+13} \end{array}$$

2.

Aşağıdaki integralleri hesaplayınız.

$$\begin{array}{lll} \text{a)} \int \sin^3 x \cos^5 x dx & \text{b)} \int \sin(ax) \cos^2(ax) dx & \text{c)} \int \sin^6 x dx \\ \text{d)} \int \sec^5 x \tan x dx & \text{e)} \int \sqrt{\tan x} \sec^4 x dx & \text{f)} \int \cos x \sin^4(\sin x) dx \\ \text{g)} \int \frac{\sin^2 x}{\cos^4 x} dx & \text{h)} \int \frac{\cos^4 x}{\sin^8 x} dx & \text{i)} \int \csc^5 x \cot^5 x dx \end{array}$$

3.

Aşağıdaki integralleri hesaplayınız.

$$\begin{array}{lll} \text{a)} \int x \cos x dx & \text{b)} \int (x+3)e^{2x} dx & \text{c)} \int x^3 \ln x dx \\ \text{d)} \int (x^2-2x)e^{kx} dx & \text{e)} \int x^2 \cos(\pi x) dx & \text{f)} \int x^5 e^{-x^2} dx \\ \text{g)} \int x e^{\sqrt{x}} dx & \text{h)} \int \sqrt{x} e^{\sqrt{x}} dx & \text{i)} \int \arctan x dx \\ \text{j)} \int x \sin^2 x dx & \text{k)} \int \arcsin x dx & \text{l)} \int x e^x \cos x dx \end{array}$$

4.

Aşağıdaki integralleri hesaplayınız.

a) $\int e^{2x} \sin(3x) dx$ b) $\int x \sec^2 x dx$
c) $\int \cos(\ln x) dx$ d) $\int \arccos x dx$

5.

Aşağıdaki integralleri hesaplayınız.

a) $\int \frac{dx}{\sqrt{1-4x^2}}$ b) $\int \frac{x^2 dx}{\sqrt{9-x^2}}$ c) $\int \frac{dx}{x^2 \sqrt{9-x^2}}$
d) $\int \frac{x^3 dx}{\sqrt{9+x^2}}$ e) $\int \frac{x+1}{\sqrt{9-x^2}} dx$ f) $\int \frac{dx}{(a^2-x^2)^{\frac{3}{2}}}$
g) $\int \frac{x^2 dx}{(a^2-x^2)^{\frac{3}{2}}}$ h) $\int \frac{dx}{x \sqrt{x^2-a^2}}$ i) $\int \frac{dx}{x^2+2x+10}$
j) $\int \frac{dx}{(4x^2+4x+5)^2}$ k) $\int \frac{x dx}{\sqrt{2ax-x^2}}$ l) $\int \frac{x dx}{(3-2x-x^2)^{\frac{3}{2}}}$
m) $\int \frac{dx}{2+\sqrt{x}}$

6.

Aşağıdaki integralleri hesaplayınız.

a) $\int \frac{2dx}{2x-3}$ b) $\int \frac{x dx}{\pi x+2}$ c) $\int \frac{dx}{a^2-x^2}$
d) $\int \frac{dx}{x^2-9}$ e) $\int \frac{x^2 dx}{x^2+x-2}$ f) $\int \frac{x-2}{x^2+x} dx$
g) $\int \frac{dx}{1-6x+9x^2}$ h) $\int \frac{x^2+1}{6x-9x^2} dx$ i) $\int \frac{dx}{x(x^2-a^2)}$
j) $\int \frac{dx}{x^3-4x^2+3x}$ k) $\int \frac{dx}{(x^2-1)^2}$ l) $\int \frac{dx}{x^4-3x^3}$
m) $\int \frac{t dt}{(t+1)(t^2+1)^2}$ n) $\int \frac{dt}{(t-1)(t^2-1)^2}$ o) $\int \frac{dx}{e^{2x}-4e^x+4}$

7.

Aşağıdaki integralleri hesaplayınız.

a) $\int \frac{x^2}{\sqrt{x^2-2}} dx$ b) $\int \sqrt{(x^2+4)^3} dx$
c) $\int \frac{dt}{t^2 \sqrt{3t^2+5}}$ d) $\int x \sqrt{2x-x^2} dx$