

İNTEGRAL ALMA KURALLARI

1. Aşağıdaki integralleri hesaplayınız.

a) $\int 5 \cdot dx$

Cevap: $5x + c$

b) $\int 3 \cdot dt$

Cevap: $3t + c$

c) $\int \sqrt{2} \cdot du$

Cevap: $\sqrt{2}u + c$

d) $\int 4dx$

Cevap: $4x + c$

e) $\int adx$

Cevap: $ax + c$

f) $\int dt$

Cevap: $t + c$

g) $\int (5m+1) \cdot dx$

Cevap: $(5m+1)x + c$

h) $\int \ln 5 dx$

Cevap: $\ln 5 \cdot x + c$

i) $\int x^2 \cdot dx$

Cevap: $\frac{x^3}{3} + c$

j) $\int (3x+2) \cdot du$

Cevap: $(3x+2)u + c$

k) $\int 7 \cdot x^3 \cdot dx$

Cevap: $\frac{7x^4}{4} + c$

l) $\int 3x^2 dx$

Cevap: $x^3 + c$

m) $\int 4x^2 dx$

Cevap: $\frac{4x^3}{3} + c$

n) $\int -2x^4 dx$

Cevap: $-\frac{2}{5}x^5 + c$

o) $\int 4x^3 dy$

Cevap: $4x^3 y + c$

ö) $\int (2x^3 + 4x + 3) dx$

Cevap: $\frac{x^4}{2} + 2x^2 + 3x + c$

p) $\int (3ax^2 + 2bx + c) dx$

Cevap: $ax^3 + bx^2 + cx + d$

r) $\int (x^2 - 4x)^2 \cdot dx$

Cevap: $\frac{x^5}{5} - 2x^4 + \frac{16x^3}{3} + c$

s) $\int (x^3 + 3x^2) dx$

Cevap: $\frac{x^4}{4} + x^3 + c$

ş) $\int (x^4 - x^3 - 2x + 1) dx$

Cevap: $\frac{x^5}{5} - \frac{x^4}{4} - x^2 + x + c$

t) $\int (x^2 - 4x + 3) dx$

Cevap: $\frac{x^3}{3} - 2x^2 + 3x + c$

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2. Aşağıdaki integralleri hesaplayınız.

a) $\int \sqrt{x} dx$

Cevap: $\frac{2}{3}x^{\frac{3}{2}} + c$

b) $\int \sqrt[3]{x} dx$

Cevap: $\frac{3}{4}x^{\frac{4}{3}} + c$

c) $\int \sqrt[5]{x^2} + \sqrt[7]{x^3} dx$

Cevap: $\frac{5}{7}x^{\frac{7}{5}} + \frac{7}{10}x^{\frac{10}{7}} + c$

d) $\int \sqrt[3]{x^2} \cdot dx$

Cevap: $\frac{3}{5}x^{\frac{5}{3}} + c$

e) $\int (2x^2 - 3\sqrt{x} + 2\sqrt[3]{x} + 1) dx$

Cevap: $\frac{2x^3}{3} - 2x^{\frac{3}{2}} + \frac{3}{2}x^{\frac{4}{3}} + x + c$

3. Aşağıdaki integralleri hesaplayınız.

a) $\int \frac{1}{x^3} dx$

Cevap: $-\frac{1}{2}x^{-2} + c$

b) $\int \frac{1}{x^4} dx$

Cevap: $-\frac{1}{3}x^{-3} + c$

c) $\int \frac{1}{\sqrt{x}} dx$

Cevap: $2\sqrt{x} + c$

d) $\int \frac{1}{\sqrt[6]{x^5}} dx$

Cevap: $6\sqrt[6]{x} + c$

e) $\int \left(\frac{1}{x^4} - \frac{2}{x^2} + 3 \right) dx$

Cevap: $-\frac{1}{3}x^{-3} + 2x^{-1} + 3x + c$

f) $\int \frac{x^3 - 2x^2 - 3}{x^2} dx$

Cevap: $\frac{x^2}{2} - 2x + 3x^{-1} + c$

g) $\int \frac{2x + 3\sqrt{x}}{x} dx$

Cevap: $2x + 6\sqrt{x} + c$

h) $\int \frac{3x^2 - \sqrt[3]{x}}{\sqrt{x}} \cdot dx$

Cevap: $\frac{6}{5}x^{\frac{5}{2}} - \frac{6}{5}x^{\frac{5}{6}}$

i) $\int \frac{2u + \sqrt[3]{u}}{\sqrt{u}} \cdot du$

Cevap: $\frac{4}{3}u^{\frac{3}{2}} + \frac{6}{5}u^{\frac{5}{6}}$

j) $\int \frac{x^4 + x^3 + x}{x^2} dx$

Cevap: $\frac{x^3}{3} + \frac{x^2}{2} + \ln x + c$

k) $\int \frac{4x^5 + 3x^4 + 2x^3 + x + 1}{x^2} dx$

Cevap: $x^4 + x^3 + x^2 - \frac{1}{x} + \ln x + c$

l) $\int \left(\frac{\sqrt{x} + \sqrt[3]{x}}{\sqrt[6]{x}} \right) dx$

Cevap: $\frac{3}{4}x^{\frac{4}{3}} + \frac{6}{7}x^{\frac{7}{6}} + c$

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