# BLOCK V

## Integration

1. Berechnen Sie folgende Integrale:

$$(1) \qquad \int_{-\sqrt{3}}^{+\sqrt{3}} (x^4 + 2x^2 - 15)\, dx$$

$$(2) \qquad \int_{-1}^{1} (x^5 - x^3 - 5x)\, dx$$

$$(3) \qquad \int_{0}^{2} (1 - x^3)\, dx$$

$$(4) \qquad \int \frac{dx}{x}$$

$$(5) \qquad \int_{0}^{x} \sin t\, dt$$

$$(6) \qquad \int_{-3}^{-1} \left( \frac{1}{x^2} - \frac{1}{x^3} \right) dx$$

$$(7) \qquad \int \frac{\cos x}{\sin x}\, dx$$

$$(8) \qquad \int \cot x\, dx$$

$$(9) \qquad \int \frac{x}{3x^2 - 1}\, dx$$

(10) $\displaystyle\int \frac{dx}{x+1}$

(11) $\displaystyle\int \cos(2x+1)\ dx$

(12) $\displaystyle\int x\ \cos x\ dx$

(13) $\displaystyle\int x\ e^x\ dx$

(14) $\displaystyle\int x\ \sin(3x-2)\ dx$

(15) $\displaystyle\int_0^2 x^2\ e^x\ dx$

(16) $\displaystyle\int_1^2 x\ \ln x\ dx$

(17) $\displaystyle\int e^x\left(\sin^2 x+\cos^2 x\right)\ dx$

(18) $\displaystyle\int e^x\ \cos x\ dx$

(19) $\displaystyle\int x^2\ \sin x\ dx$

(20) $\displaystyle\int x^2\ \cos x\ dx$