

Integration

$$(1) \int x^2 \ln x \, dx$$

$$(2) \int \cos^3 x \, dx$$

$$(3) \int_{\sqrt{2}}^2 \frac{\sqrt{x^2 - 1}}{x} \, dx$$

$$(4) \int_1^{\infty} x^{-2} \, dx$$

$$(5) \int \frac{x^2 + 12x - 4}{x^3 - 4x} \, dx$$

$$(6) \int_{1/2}^{\sqrt{3}/2} \sin^{-1} x \, dx$$

$$(7) \int \sin^3 x \cos^2 x \, dx$$

$$(8) \int x \sec^2 x \, dx$$

$$(9) \int \frac{x^2 + x + 2}{(x + 1)(x^2 + 1)} \, dx$$

$$(10) \int \frac{1}{x^2 \sqrt{x^2 + 9}} \, dx$$

$$(11) \int_{-\infty}^{\infty} x e^{-x^2} \, dx$$

$$(12) \int x \tan^2 x \, dx$$

$$(13) \int_{-1}^2 \frac{5x}{x^2 - x - 6} \, dx$$

$$(14) \int_0^{\pi/4} \tan^3 x \sec^2 x \, dx$$

$$(15) \int \frac{1}{(1 - x^2)^{3/2}} \, dx$$

$$(16) \int \sin^3 x \cos^5 x \, dx$$

$$(17) \int_0^1 \frac{e^{\sqrt{x}}}{\sqrt{x}} \, dx$$

$$(18) \int_0^{5/2} \frac{1}{\sqrt{25-x^2}} dx$$

$$(19) \int e^{-x} \sin 4x dx$$

$$(20) \int_0^{1/\sqrt{3}} \sqrt{x^2+1} dx$$

$$(21) \int \frac{6}{x^2-1} dx$$

$$(22) \int \tan^2 x \sec^4 x dx$$

$$(23) \int_{-1}^2 \frac{5x}{x^2-x-6} dx$$

$$(24) \int_0^{\pi/2} x \cos 2x dx$$

$$(25) \int \frac{81}{x^3-9x^2} dx$$

$$(26) \int_1^2 \frac{1}{\sqrt{x-1}} dx$$

$$(27) \int \sin^2 x \cos^4 x dx$$

$$(28) \int \frac{2}{x(x^2+1)^2} dx$$

$$(29) \int x^2 e^{2x} dx$$

$$(29) \int_2^{\infty} \frac{1}{\sqrt{x}} dx$$

$$(30) \int \tan x \sec^3 x dx$$

$$(31) \int_{-\infty}^{\infty} x e^{-x^2} dx$$

$$(32) \int \frac{x-5}{x^2(x+1)} dx$$

$$(33) \int_1^2 \frac{1}{\sqrt{x-1}} dx$$

$$(34) \int \frac{1}{\sqrt{x^2-81}} dx$$