

1. 求下列不定积分

$$(1) \int \frac{1}{(2x+3)^9} dx$$

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

$$(5) \int \frac{1}{x^2+6x+9} dx$$

$$(7) \int \frac{1}{\sqrt{1-(2x-3)^2}} dx$$

$$(9) \int (e^x+1)^3 dx$$

$$(11) \int \sec^2 \frac{t}{2} dt$$

$$(13) \int e^{f(x)} f'(x) dx$$

$$(15) \int \frac{2x-3}{x^2-3x+8} dx$$

$$(17) \int \frac{\csc^2 x}{\operatorname{ctg} x} dx$$

$$(19) \int \frac{1}{x(x^6+4)} dx$$

$$(21) \int \frac{dx}{x \ln x \ln(\ln x)}$$

$$(23) \int x e^{-x^2} dx$$

$$(25) \int \frac{x \operatorname{tg} \sqrt{1+x^2}}{\sqrt{1+x^2}} dx$$

$$(27) \int \frac{(\operatorname{arctg} x)^2}{1+x^2} dx$$

$$(2) \int (5-3x)^{100} dx$$

$$(4) \int \frac{1}{4+9x^2} dx$$

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

$$(8) \int e^{2-3x} dx$$

$$(10) \int \cos^2(\omega t + \varphi) \sin(\omega t + \varphi) dt$$

$$(12) \int \frac{1}{\sin^2(3x - \frac{\pi}{4})} dx$$

$$(14) \int \frac{x}{\sqrt{1-2x^2}} dx$$

$$(16) \int \frac{\cos x}{1+\sin x} dx$$

$$(18) \int \left(1 + \frac{1}{ax^2+b}\right) \frac{x}{ax^2+b} dx$$

$$(20) \int \operatorname{tg}^{10} x \sec^2 x dx$$

$$(22) \int \left(1 - \frac{1}{x^2}\right) e^{x+\frac{1}{x}} dx$$

$$(24) \int \frac{1}{x^2} e^{1-\frac{3}{x}} dx$$

$$(26) \int (e^{\sin x} \cos x - a^{\cos 2x} \sin 2x) dx$$

$$(28) \int \frac{dx}{(\operatorname{arcsin} x)^2 \sqrt{1-x^2}}$$

$$(29) \int \frac{1}{\sqrt{x(1-x)}} dx$$

$$(31) \int \frac{1}{(x^2+1)(x^2+3)} dx$$

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

$$(35) \int \frac{x^3}{9+x^2} dx$$

$$(37) \int \frac{\sin x}{\cos^3 x} dx$$

$$(39) \int \frac{\sqrt{1+\cos x}}{\sin x} dx$$

$$(41) \int \frac{\operatorname{ctg} \theta}{\sqrt{\sin \theta}} d\theta$$

$$(43) \int \sin 3x \sin 5x dx$$

$$(45) \int \frac{\sin x + \cos x}{\sqrt{\sin x - \cos x}} dx$$

$$(47) \int \frac{\operatorname{arctg} \sqrt{x}}{\sqrt{x}(1+x)} dx$$

$$(30) \int \frac{dx}{\sqrt{x+1} + \sqrt{x-1}}$$

$$(32) \int \frac{x^2+7x+12}{x+7} dx$$

$$(34) \int \frac{1-x}{\sqrt{9-4x^2}} dx$$

$$(36) \int \frac{\sin x \cos x}{1 + \sin^4 x} dx$$

$$(38) \int \frac{1}{1 + \cos x} dx$$

$$(40) \int \frac{1}{\sin^4 x \cos^3 x} dx$$

$$(42) \int \cos^2 3x dx$$

$$(44) \int \sin(2x - \frac{\pi}{6}) \cos(3x + \frac{\pi}{4}) dx$$

$$(46) \int \frac{10^{\arccos x}}{\sqrt{1-x^2}} dx$$

$$(48) \int \frac{1 + \ln x}{(x \ln x)^2} dx$$



2. 求下列不定积分

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

$$(3) \int \frac{dx}{\sqrt{1+e^x}}$$

$$(5) \int \frac{x^3}{\sqrt{1+x^2}} dx$$

$$(7) \int \frac{e^x(1+e^x)}{\sqrt{1-e^{2x}}} dx$$

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

$$(11) \int \frac{1}{x^3(x^2+1)} dx$$

$$(13) \int x^5 \sqrt[3]{(1+x^3)^2} dx$$

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

$$(4) \int \frac{x^5}{\sqrt{a^3-x^3}} dx$$

$$(6) \int \sqrt{\frac{a+x}{a-x}} dx$$

$$(8) \int \frac{1+x}{x(1+xe^x)} dx$$

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

$$(12) \int \frac{1}{x(x^4+4)} dx$$