

Integrali indefiniti quasi immediati

- 01) $\int \frac{1}{x^3} dx = -\frac{1}{2x^2} + k$ 02) $\int \frac{1}{\sqrt[3]{x^2}} dx = 3\sqrt[3]{x} + k$ 03) $\int \sqrt[4]{(x-2)^3} dx = \frac{4}{7}\sqrt[4]{(x-2)^7} + k$
- 04) $\int \sqrt[5]{(3+x)^4} dx = \frac{5}{9}\sqrt[5]{(3+x)^9} + k$ 05) $\int \sqrt[3]{(2+3x)^2} dx = \frac{1}{5}\sqrt[3]{(2+3x)^5} + k$
- 06) $\int \frac{1}{\sqrt{3-4x}} dx = -\frac{1}{2}\sqrt{3-4x} + k$ 07) $\int \frac{1}{\sqrt{x+1}} dx = 2\sqrt{x+1} + k$
- 08) $\int \frac{1}{\sqrt[6]{(3-x)^5}} dx = -6\sqrt[6]{3-x} + k$ 09) $\int \frac{1}{\sqrt[4]{(2-3x)^3}} dx = -\frac{4}{3}\sqrt[4]{2-3x} + k$
- 10) $\int \frac{x^2}{\sqrt[3]{5+x^3}} dx = \frac{1}{2}\sqrt[3]{(5+x^3)^2} + k$ 11) $\int \frac{3x^2}{\sqrt[4]{x^3-2}} dx = \frac{4}{3}\sqrt[4]{(x^3-2)^3} + k$
- 12) $\int \cos 3x \sqrt{1-\sin 3x} dx = -\frac{2}{9}\sqrt{(1-\sin 3x)^3} + k$ 13) $\int \frac{x}{\sqrt{1+x^2}} dx = \sqrt{1+x^2} + k$
- 14) $\int x\sqrt{1-x^2} dx = -\frac{1}{3}\sqrt{(1-x^2)^3} + k$ 15) $\int \sqrt{1+4x} dx = \frac{1}{6}\sqrt{(1+4x)^3} + k$
- 16) $\int \frac{\arctg^2 x}{1+x^2} dx = \frac{1}{3}\arctg^3 x + k$ 17) $\int \frac{\arcsin x}{\sqrt{1-x^2}} dx = \frac{1}{2}\arcsin^2 x + k$
- 18) $\int \frac{1}{\cos^2 x} \cdot \operatorname{tg} x \cdot dx = \frac{1}{2}\operatorname{tg}^2 x + k$ 19) $\int \cos^5 x \sin x dx = \frac{1}{6}\cos^6 x + k$
- 20) $\int \frac{\ln^3 x}{x} dx = \frac{1}{4}\ln^4 x + k$ 21) $\int \sqrt{\ln x^2} \cdot \frac{1}{x} dx = \frac{2\sqrt{2}}{3}\sqrt{\ln^3 x} + k$
- 22) $\int \left(\frac{1}{\sqrt{3x+2}} + \sqrt{2x} \right) dx = \frac{2}{3}\sqrt{3x+2} + \frac{2}{3}\sqrt{2x^3} + k$ 23) $\int \frac{1}{\sqrt{2x-3}} dx = \sqrt{2x-3} + k$
- 24) $\int \frac{x^2}{(x^3+1)^2} dx = -\frac{1}{3}\frac{1}{x^3+1} + k$ 25) $\int \sqrt{3+x} dx = \frac{2}{3}\sqrt{(3+x)^3} + k$
- 26) $\int \sqrt[4]{x+5} dx = \frac{4}{5}\sqrt[4]{(x+5)^5} + k$ 27) $\int (1+\cos x)\sqrt{x+\sin x} dx = \frac{5}{6}\sqrt[5]{(x+\sin x)^6} + k$
- 28) $\int x(x^2+1)^3 dx = \frac{1}{8}(x^2+1)^4 + k$ 29) $\int \frac{3x^2}{(x^3+5)^4} dx = -\frac{1}{3}\frac{1}{(x^3+5)^3} + k$
- 30) $\int x\sqrt{2+x^2} dx = \frac{1}{4}\sqrt{(2+x^2)^3} + k$ 31) $\int \frac{x}{\sqrt{x^2+a^2}} dx = \sqrt{x^2+a^2} + k$
- 32) $\int x\sqrt{3-x^2} dx = -\frac{1}{3}\sqrt{(3-x^2)^3} + k$ 33) $\int x\sqrt{5+4x^2} dx = \frac{1}{12}\sqrt{(5+4x^2)^3} + k$

$$34) \int \frac{x}{\sqrt[3]{5+x^2}} dx = \frac{3}{4} \sqrt{(5+x^2)^3} + k$$

$$35) \int \sin^2 x \cos x dx = \frac{1}{2} \sin^3 x + k$$

$$36) \int \cos^2 x \sin x dx = -\frac{1}{3} \cos^3 x + k$$

$$37) \int \sin^3 x \cos x dx = -\frac{1}{4} \cos^4 x + k$$

$$38) \int \frac{\ln x}{x\sqrt{1-\ln^2 x}} dx = -\sqrt{1-\ln^2 x} + k$$

$$39) \int \frac{\ln \frac{1}{x}}{x\sqrt{1-\ln^2 x}} dx = -2\ln\sqrt{1-\ln^2 x}$$

$$40) \int \frac{\sin x \cos x}{\sqrt{\cos^2 x - \sin^2 x}} dx = -\frac{1}{2} \sqrt{\cos 2x} + k$$

$$41) \int tg^3 \frac{x}{3} \cdot \sec^2 \frac{x}{3} dx = \frac{3}{4} tg^4 \frac{x}{3} + k$$

$$42) \int \frac{\sqrt{1+tgx}}{\cos^2 x} dx = \frac{2}{3} \sqrt{(1+tgx)^3} + k$$

$$43) \int \frac{\sqrt{1+\cot gx}}{\sin^2 x} dx = -\frac{2}{3} \sqrt{(1+\cot gx)^3} + k$$

$$44) \int \frac{tg^3 x}{\cos^2 x} dx = \frac{1}{4} tg^4 x + k$$

$$45) \int \frac{\cot g^3 x}{\sin^2 x} dx = -\frac{1}{4} \cot g^4 x + k$$

$$46) \int 2x\sqrt{x^2+3} dx = \frac{2}{3} \sqrt{(x^2+3)^3} + k$$

$$47) \int \cos x \sin^3 x dx = \frac{1}{4} \sin^4 x + k$$

$$48) \int \sin x \cos^2 x dx = -\frac{1}{3} \cos^3 x + k$$

$$49) \int \frac{x+1}{\sqrt{2x^2+4x+3}} dx = \frac{1}{2} \sqrt{2x^2+4x+3} + k$$

$$50) \int \sqrt{3x-1} dx = \frac{2}{9} \sqrt{(3x-1)^3} + k$$

$$51) \int \cos x \sqrt{1+\sin x} dx = \frac{2}{3} \sqrt{(1+\sin x)^3} + k$$

$$52) \int \frac{\cos x}{\sin^3 x} dx = -\frac{1}{2\sin^2 x} + k$$

$$53) \int \frac{1}{x \ln x} dx = -\frac{1}{2\ln^2 x} + k$$

$$54) \int \frac{\sin x}{\sqrt[3]{\cos^2 x}} dx = -3\sqrt[3]{\cos x} + k$$

$$55) \int \frac{x^3}{(x^4+2)^3} dx = -\frac{1}{8(x^4+2)^2} + k$$

$$56) \int \frac{3x}{\sqrt{1+4x^2}} dx = \frac{3}{4} \sqrt{1+4x^2} + k$$

$$57) \int \cos^3 x (\sin x - \sin^3 x) dx = -\frac{1}{6} \cos^6 x + k$$

$$58) \int e^x \sqrt{1+e^x} dx = \frac{2}{3} \sqrt{(1+e^x)^3} + k$$

$$59) \int \sin x tg \cos x dx = \ln \cos \cos x + k$$

$$60) \int \frac{1}{x+2} dx = \ln(x+2) + k$$

$$61) \int \frac{1}{x \ln x} dx = \ln \ln x + k$$

$$62) \int \frac{1}{\arcsin x} \cdot \frac{1}{\sqrt{1-x^2}} dx = \ln \arcsin x + k$$

$$63) \int_2 \frac{x}{x^2+1} dx = \frac{1}{2} \ln(x^2+1) + k$$

$$64) \int \frac{1}{\cos 2x} dx = -\frac{1}{2} \ln \left| tg \left(\frac{\pi}{4} - x \right) \right| + k$$

$$65) \int \frac{x-2}{x^2-4x} dx = \frac{1}{2} \ln(x^2-4x) + k$$

$$66) \int \frac{tg \sqrt{x}}{\sqrt{x}} dx = -2 \ln |\cos \sqrt{x}| + k$$

$$67) \int \frac{1}{2-5x} dx = -\frac{1}{5} \ln |2-5x| + k$$

$$68) \int \cot g x dx = \ln \sin x + k$$

$$69) \int \frac{2x+1}{x^2+x+3} dx = \ln(x^2+x+3) + k$$

$$70) \int \frac{x}{3x^2+4} dx = \frac{1}{2} \ln(3x^2+4) + k$$

$$71) \int \frac{2x-3}{x^2-3x+6} dx = \ln(x^2-3x+6) + k$$

$$72) \int \frac{6x-5}{3x^2-5x+6} dx = \ln(3x^2-5x+6) + k$$

$$73) \int \frac{2x - \sin x}{5 + x^2 + \cos x} dx = \ln(5 + x^2 + \cos x) + k$$

$$74) \int \frac{1}{\sin 2x + \cos 2x} dx = \frac{1}{2\sqrt{2}} \ln \left| \tan \left(x + \frac{\pi}{8} \right) \right| + k$$

$$75) \int \frac{\cos 2x - \sin 2x}{\sin 2x + \cos 2x} dx = \frac{1}{2} \ln |\sin 2x + \cos 2x| + k$$

$$76) \int \frac{\cos x + \sin x}{\cos 2x} dx = \frac{1}{\sqrt{2}} \ln \left| \tan \left(\frac{x}{2} - \frac{\pi}{8} \right) \right| + k$$

$$77) \int \frac{\cos x - \sin x}{\cos 2x} dx = \frac{1}{\sqrt{2}} \ln \left| \tan \left(\frac{x}{2} + \frac{\pi}{8} \right) \right| + k$$

$$78) \int \frac{2x+1}{x^2+x+3} dx = \ln(x^2+x+3) + k$$

$$79) \int \frac{2x+1}{x^2+x+9} dx = \ln(x^2+x+9) + k$$

$$80) \int \frac{e^{2x}}{e^{2x}+2} dx = \ln \sqrt{e^{2x}+2} + k$$

$$81) \int \frac{e^x}{1+e^x} dx = \ln(1+e^x) + k$$

$$82) \int \frac{2x + \sin}{x^2 - \cos x + 2} dx = \ln(x^2 - \cos x + 2) + k$$

$$83) \int \frac{e^{2x}}{e^{2x}+1} dx = \ln \sqrt{e^{2x}+1} + k$$

$$84) \int \frac{e^x}{1+e^{2x}} dx = \arctg e^x + k$$

$$85) \int \frac{7^x}{\sqrt{1-(7^x)^2}} dx = \frac{1}{\ln 7} \arcsin 7^x + k$$

$$86) \int x \cos x^2 dx = \frac{1}{2} \sin x^2 + k$$

$$87) \int x^2 \cos x^3 dx = \frac{1}{3} \sin x^3 + k$$

$$88) \int 3^{\sin x} \cdot \cos x dx = \frac{3^{\sin x}}{\ln 3} + k$$

$$89) \int \frac{1}{1+\tan^2 x} \cdot \frac{1}{\cos^2 x} dx = \arctg \tan x + k$$

$$90) \int \frac{1}{x^2+2x+2} dx = \arctg(x+1) + k$$

$$91) \int \frac{1}{x^2-2x+2} dx = \arctg(x-1) + k$$

$$92) \int \frac{1}{\sqrt{-9x^2+12x-3}} dx = \frac{1}{3} \arcsin(2-3x) + k$$

$$93) \int \frac{1}{\sqrt{-x^2-10x-24}} dx = \arcsin(x+5) + k$$

$$94) \int \frac{1}{\sqrt{-x^2-2x}} dx = \arcsin(x+1) + k$$

$$95) \int \frac{1}{1+\cos(x+\alpha)} dx = \tan g \frac{x+\alpha}{2} + k$$

$$96) \int \frac{1}{1-\cos(x+\alpha)} dx = -\cot g \frac{x+\alpha}{2} + k$$

$$97) \int e^{x^2} \cdot x dx = \frac{1}{2} e^{x^2} + k$$

$$98) \int \frac{e^{\tan x}}{\cos^2 x} dx = e^{\tan x} + k$$

$$99) \int \frac{x^2}{\sqrt{1-x^2}} dx = \frac{1}{3} \arcsin x^3 + k$$

$$100) \int \frac{1}{x^2} \cos \frac{1}{x} dx = -\sin \frac{1}{x} + k$$

$$101) \int \frac{e^{\arctg x}}{1+x^2} dx = e^{\arctg x} + k$$

$$102) \int \frac{x^3}{1+x^8} dx = \frac{1}{4} \arctg x^4 + k$$

$$103) \int \frac{x^4}{1+x^{10}} dx = \frac{1}{4} \arctg x^5 + k$$

$$104) \int \frac{x^2}{1+x^6} dx = \frac{1}{3} \arctg x^3 + k$$

$$\begin{aligned}
105) \int \frac{x^5}{1+x^{12}} dx &= \frac{1}{6} \operatorname{arctg} x^6 + k & 106) \int \frac{x^6}{1+x^{14}} dx &= \frac{1}{7} \operatorname{arctg} x^7 + k \\
107) \int \frac{x^7}{1+x^{16}} dx &= \frac{1}{8} \operatorname{arctg} x^8 + k & 108) \int \frac{x^2}{\sqrt{1-x^6}} dx &= \frac{1}{3} \arcsin x^3 + k & 109) \int 2xe^{x^2} dx &= e^{x^2} + k \\
110) \int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx &= 2e^{\sqrt{x}} + k & 111) \int \frac{2x-3}{\sin^2(x^2-3x)} dx &= \cot g(3x-x^2) + k \\
112) \int \frac{e^x}{\sqrt{1-e^{2x}}} dx &= \arcsin e^x + k & 113) \int \frac{e^x}{\cos^2 e^x} dx &= \operatorname{tge}^x + k \\
114) \int \frac{2}{\sqrt{1-4x^2}} dx &= \arcsin 2x + k & 115) \int \frac{e^x}{1+e^{2x}} dx &= \operatorname{arctg} e^x + k \\
116) \int \frac{1}{1+\ln^2 x} \cdot \frac{1}{x} dx &= \operatorname{arctg} \ln x + k & 117) \int \frac{1}{e^x + e^{-x}} dx &= \operatorname{arctg} e^x + k \\
118) \int \sqrt{1-\cos x} dx &= -2\sqrt{2} \cos \frac{x}{2} + k & 119) \int \sqrt{1+\cos x} dx &= 2\sqrt{2} \sin \frac{x}{2} + k \\
120) \int \frac{x}{1+(x^2-1)^2} dx &= \frac{1}{2} \operatorname{arctg}(x^2-1) + k & 121) \int \frac{\sin \frac{x}{2} \cos \frac{x}{2}}{\sin^3 x} dx &= -\frac{1}{2} \cot gx + k \\
122) \int \frac{2-\cos^2 x}{\cos^2 x + 2\sin^2 x} dx &= x + k
\end{aligned}$$

Integrazione per decomposizione

$$\begin{aligned}
01) \int x(2x-1)^3 dx &= \frac{8}{5}x^5 - 3x^4 + 2x^3 - \frac{1}{2}x^2 + k & 02) \int \sqrt{x}(x+2)^2 dx &= \frac{2}{7}\sqrt{x^7} + \frac{8}{5}\sqrt{x^5} + \frac{8}{3}\sqrt{x^3} + k \\
03) \int \left(3x^2 + \frac{1}{x} + 1\right)^2 dx &= \frac{9}{5}x^5 - \frac{1}{x} + x + 3x^2 + 2x^3 + 2\log x + k \\
04) \int (2x+1)(x-1)^2 dx &= \frac{1}{2}x^4 - x^3 + x + k & 05) \int (\sqrt[3]{x^2} + \sqrt{x} + 2) dx &= \frac{3}{5}\sqrt[3]{x^5} + \frac{2}{3}\sqrt{x^3} + 2x + k \\
06) \int \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right) dx &= \frac{2}{3}\sqrt{x^3} + 2\sqrt{x} + k & 07) \int \frac{\sqrt[4]{x^3} + \sqrt{x} + 1}{\sqrt[3]{x^2}} dx &= \frac{12}{13}\sqrt[13]{x^{12}} + \frac{6}{5}\sqrt[6]{x^5} + 3\sqrt[3]{x} + k \\
08) \int (x-1)^2(\sqrt{x}+2) dx &= \frac{2}{7}\sqrt{x^7} - \frac{4}{5}\sqrt{x^5} + \frac{2}{3}\sqrt{x^3} + \frac{2}{3}x^3 - 2x^2 + 2x + k \\
09) \int \frac{x^3 - 4x^2 + 3}{\sqrt{x}} dx &= \frac{2}{7}\sqrt{x^7} - \frac{8}{5}\sqrt{x^5} + 6\sqrt{x} + k
\end{aligned}$$

$$10) \int \frac{(3\sqrt[3]{x}-2)^2}{\sqrt[3]{x}} dx = \frac{27}{4}\sqrt[3]{x^4} + 6\sqrt[3]{x^2} - 12x + k$$

$$11) \int \frac{x-1}{x+1} dx = x - 2\log|x+1| + k$$

$$12) \int \frac{x}{1+x} dx = x - \ln(1+x) + k$$

$$13) \int \frac{x^2}{1+x^2} dx = x - \arctg x + k \quad 14) \int \frac{3x-5}{x^2-3x+2} dx = \log(x-2) + 2\log(x-1) + k$$

$$15) \int \frac{x^3+3}{1+x^2} dx = x + 2\arctg x + k \quad 16) \int \frac{x^3+2x^2-5}{x^2+1} dx = \frac{1}{2}x^2 + 2x - \frac{1}{2}\log(1+x^2) - 7\arctg x$$

$$17) \int \frac{(3\sqrt[3]{x}-2)^2}{\sqrt[3]{x}} dx = \frac{27}{4}\sqrt[3]{x^4} - 12x \quad 18) \int \left(x - \frac{1}{x}\right)^3 dx = \frac{1}{4}x^4 - \frac{3}{2}x^2 + 3\ln x + \frac{1}{2x^2}$$

$$19) \int \frac{1+x^2}{x} dx = \frac{1}{2}x^2 + \ln x + k$$

$$20) \int \frac{x^2+1}{(x-1)^2} dx = x - \frac{2}{x-1} + 2\ln(x-1) + k$$

$$21) \int \frac{x^3}{x^2+1} dx = \frac{1}{2}x^2 - \frac{1}{2}\ln(x^2-1) + k$$

$$22) \int \frac{3x}{2x-1} dx = \frac{3}{2}x + \frac{3}{4}\ln(2x-1) + k$$

$$23) \int \frac{x^3+2x-3}{\sqrt{x}-1} dx = \frac{2}{7}\sqrt{x^7} + \frac{1}{3}x^3 + \frac{2}{5}\sqrt{x^5} + \frac{1}{2}\sqrt{x^3} + 3x + k$$

$$24) \int \frac{7x}{4-\sqrt{x+16}} dx = -28x - \frac{14}{3}\sqrt{(x+16)^3} + k \quad 25) \int (\sqrt{x} + \sqrt[3]{x})^2 dx = \frac{1}{2}x^2 + \frac{3}{5}\sqrt[3]{x^5} + \frac{12}{11}\sqrt[6]{x^{11}}$$

$$26) \int \frac{(1-x)^2}{x\sqrt{x}} dx = \frac{-2}{\sqrt{x}} - 4\sqrt{x} + \frac{2}{3}\sqrt{x^3} + k$$

$$27) \int \frac{x-8}{\sqrt[3]{x}-2} dx = \frac{3}{5}\sqrt[3]{x^5} - 2\sqrt[3]{x^4} + 4x + k$$

$$28) \int \frac{x-1}{\sqrt[3]{x}-1} dx = \frac{3}{5}\sqrt[3]{x^5} + \frac{3}{4}\sqrt[3]{x^4} + x + k \quad 29) \int \frac{x^4-x^3+3x^2-x+1}{x^3-1} dx = \frac{1}{3}x^3 - x + \log(x^2-1) + k$$

$$30) \int \frac{x^4+3x^3+9x^2-12x+2}{x^2+4x+13} dx = \frac{1}{2} - x + \log(x^3-1) + k$$

$$31) \int \frac{x^4+3x^3+9x^2-12x+2}{x^2+4x+13} dx = \frac{1}{3}x^3 + \frac{1}{2}x^2 + \frac{1}{2}\log(x^2+4x+13)$$

$$32) \int \frac{7x^4-2x^2+x}{7x^2-2} dx = \frac{1}{3}x^3 + \frac{1}{14}\log(7x^2-2)$$

$$33) \int \frac{\sqrt[3]{x^2}-\sqrt[4]{x}}{\sqrt{x}} dx = \frac{6}{7}\sqrt[6]{x^7} - \frac{4}{3}\sqrt[4]{x^3} + k$$

$$33) \int \frac{1}{\sqrt{x+1}-\sqrt{x-1}} dx = \frac{1}{3}\sqrt{(x+1)^3} + \frac{1}{3}\sqrt{(x-1)^3}$$

$$34) \int \frac{1}{\sqrt{x+1}+\sqrt{x-1}} dx = \frac{1}{3}\sqrt{(x+1)^3} - \frac{1}{3}\sqrt{(x-1)^3}$$

$$35)) \int \frac{1}{\sqrt{4x+1}-\sqrt{4x+7}} dx = -\frac{1}{36}\sqrt{(4x+1)^3} - \frac{1}{36}\sqrt{(4x+7)^3}$$

$$36) \int \frac{x dx}{\sqrt{4x^2+1}\sqrt{4x^2-4}} = \frac{1}{60} \sqrt{(4x^2+1)^3} + \frac{1}{60} \sqrt{(4x^2-4)^3}$$

$$37) \int (3x^4 - 2x^3 + 5) dx = \frac{3}{5}x^5 - \frac{1}{2}x^2 + 5x + k \quad 121) \int \left(2 - \frac{3}{\sin^2 x}\right) dx = 2x + 3 \cot gx + k$$

$$38) \int \sin^2 x dx = \frac{1}{2}x - \frac{1}{4}\sin 2x + k \quad 39) \int \cos^2 x dx = \frac{1}{2}(x - \sin x \cos x) + k$$

$$40) \int \cos^2 2x dx = \frac{1}{2}x + \frac{1}{8}\sin 4x + k \quad 41) \int \cos^2 \frac{x}{2} dx = \frac{1}{2}x + \frac{1}{2}\sin x + k$$

$$42) \int \sin^2 \frac{x}{2} dx = \frac{1}{2}x - \frac{1}{2}\sin x + k \quad 43) \int \sin^3 x dx = -\cos x + \frac{1}{3}\cos^3 x + k$$

$$44) \int \cos^3 x dx = \sin x - \frac{1}{3}\sin^3 x + k \quad 45) \int \sin^4 x dx = \frac{3}{8}x - \frac{1}{4}\sin 2x + \frac{1}{32}\sin 4x + k$$

$$46) \int \cos^5 x dx = \sin x - \frac{2}{3}\sin^3 x + \frac{1}{5}\sin^5 x \quad 47) \int (1 + \sin^3 x) \cos x dx = \frac{1}{4}\sin^4 x + \sin x + k$$

$$48) \int tg^2 x dx = tgx - x + k \quad 49) \int \cot g^2 x dx = -x - \cot gx + k$$

$$50) \int tg^3 x dx = \frac{1}{2}tg^2 x + \log \cos x + k \quad 51) \int \cot g^3 x dx = -\frac{1}{2}\cot g^2 x - \log \sin x + k$$

$$52) \int tg^4 x dx = \frac{1}{3}tg^3 x + x + k \quad 53) \int \sin^4 x \cos^3 x dx = \frac{1}{5}\sin^5 x - \frac{1}{7}\sin^7 x + k$$

$$54) \int \cos x (tgx + e^{\sin x}) dx = -\cos x + e^{\sin x} + k$$

$$55) \int \cos t \sqrt{2-2\cos t} dt = -\frac{4}{3}\cos^3 \frac{t}{2} - 4\left(-\cos \frac{t}{2} + \frac{1}{3}\cos^3 \frac{t}{2}\right) + k$$

$$56) \int \frac{1}{\sin x \cos x} dx = \log|tgx| + k$$

$$57) \int \frac{1}{\sin^2 x \cos^2 x} dx = -\cot gx + tgx + k$$

$$58) \int \frac{\sin^2 x - \cos^2 x}{\sin^2 x \cos^2 x} dx = tgx + \cot gx + k$$

$$59) \int \frac{1}{\sin 2x} dx = \frac{1}{2}\log|tgx| + k$$

$$60) \int \frac{1}{\sin 4x} dx = \frac{1}{4}\log|tg 2x| + k$$

$$61) \int \frac{\cos 2x}{1 + \cos 2x} dx = x - \frac{1}{2}tgx + k$$

$$62) \int \frac{1 - \cos 2x}{1 + \cos 2x} dx = -x + tgx + k$$

$$63) \int \frac{1 + \cos 2x}{1 - \cos 2x} dx = -x - \cot gx + k$$

$$64) \int \frac{1}{1 + \cos 2x} dx = \frac{1}{2}tgx + k$$

$$65) \int \frac{1}{1 - \cos 2x} dx = -\frac{1}{2}\cot gx + k$$

$$66) \int \frac{1}{\cos^4 x} dx = tgx + \frac{1}{3}tg^3 x + k$$

$$67) \int \frac{1}{\sin^4 x} dx = -\frac{1}{3}\cot g^3 x - \cot gx + k$$

$$68) \int \frac{\sin^3 x}{\cos^5 x} dx = \frac{1}{4 \cos^4 x} - \frac{1}{2 \cos^2 x} + k$$

$$69) \int \frac{\cos 2x}{\cos^2 x \sin^2 x} dx = \frac{-2}{\sin 2x} + k$$

$$70) \int 2 \sin^2 \frac{x}{2} dx = x - \frac{1}{2} \sin 2x + k$$

$$71) \int \frac{\sin x + \cos x}{1 - \sin x} dx =$$

$$72) \int \frac{1}{1 - \sin x} dx = \frac{\sin x + 1}{\cos x}$$

$$73) \int \frac{1}{\sin x + \cos x} dx = \frac{1}{\sqrt{2}} \log \left| \operatorname{tg} \left(\frac{x}{2} + \frac{\pi}{8} \right) \right| + k$$

$$74) \int \frac{1 - \sin x}{\sin x \cos x} dx = \log | \operatorname{tg} x | + \log \left| \operatorname{tg} \left(\frac{\pi}{4} - \frac{x}{2} \right) \right|$$

$$75) \int \frac{1 + \sin x}{\sin x \cos x} dx = -\log | \operatorname{tg} x | + \log \left| \operatorname{tg} \left(\frac{\pi}{4} - \frac{x}{2} \right) \right|$$

$$76) \int \frac{1 - \cos x}{\sin x \cos x} dx = \log | \operatorname{tg} x | - \log \left| \operatorname{tg} \frac{x}{2} \right| + k$$

$$77) \int \frac{1 + \cos x}{\sin x \cos x} dx = \log | \operatorname{tg} x | + \log \left| \operatorname{tg} \frac{x}{2} \right| + k$$

$$78) \int \frac{\sin x - \sin^3 x}{1 - \sin x} dx = -\cos x + \frac{1}{2} x - \frac{1}{4} \sin 2x + k$$

$$79) \int \frac{\operatorname{tg} x}{1 + \operatorname{tg}^2 x} dx = -\frac{1}{4} \cos 2x + k$$

$$80) \int \sin 4x \cos 2x dx = -\frac{1}{6} \cos 6x - \frac{1}{4} \cos 2x + k \quad 81) \int \sin 4x \sin 3x dx = \frac{1}{2} \sin x - \frac{1}{4} \sin 7x + k$$

$$82) \int \frac{e^{x^2-1} - e^{(x+1)^2}}{e^{x^2}} dx = \frac{x}{e} - \frac{e}{2} e^{2x} + k$$

$$83) \int \frac{e^{2x}}{\sqrt{e^x - 1}} dx = \frac{2}{3} \sqrt{(e^x - 1)^3} + 2\sqrt{e^x - 1} + k$$

$$84) \int \frac{1 + \ln x}{x \ln x} dx = \ln x + \ln \ln x + k \quad 85) \int \frac{\cot gx}{1 + \cot g^2 x} dx = -\frac{1}{4} \cos 2x + k$$

$$86) \int \frac{x + \arcsin^2 x}{\sqrt{1 - x^2}} dx = -\sqrt{1 - x^2} + \frac{1}{3} \arcsin^3 x + k$$

Integrazione per parti

$$7) \int \frac{x}{e^x} dx = -\frac{x}{e^x} - \frac{1}{e^x} + k \quad 16) \int x^2 e^x dx = (x^2 - 2x + 2)e^x + k \quad 28) \int x e^{1-2x} dx = -\frac{1}{2} \left(x + \frac{1}{2} \right) e^{1-2x} + k$$

$$39) \int (1 - 2x)e^{2x} dx = (1 - x)e^{2x} + k$$

$$41) \int 3x^2 e^{1-2x} dx = -\frac{3}{2} (x^2 + x + 1)e^{1-2x} + k$$

$$43) \int x e^{-x} dx = -(x + 1)e^{-x} + k \quad 55) \int x e^{2x} dx = \frac{1}{2} x e^{2x} - \frac{1}{4} e^{2x} + k \quad 63) \int x^3 e^{\frac{x^2}{2}} dx = (x^2 - 2)e^{\frac{x^2}{2}} + k$$

$$75) \int x^2 e^{3x} dx = \frac{1}{3} \left(x^2 - \frac{1}{3} x + \frac{2}{9} \right) e^{3x} + k \quad 85) \int \frac{e^{\frac{1}{x}}}{x^4} dx = \left(-\frac{1}{x^2} + \frac{2}{x} - 2 \right) e^{\frac{1}{x}} + k$$

$$86) \int \frac{1}{x^4 e^{\frac{1}{x}}} dx = \left(\frac{1}{x^2} + \frac{2}{x} - 2 \right) e^{\frac{1}{x}} + k \quad 87) \int (x - 1)^3 e^{-x} dx = (-x^3 - 3x - 2)e^{-x} + k$$

$$88) \int (x-1)^4 e^{-x} dx = (-x^4 - 6x^2 - 8x - 9)e^{-x} + k$$

$$93) \int x e^x dx = (x-1)e^x + k$$

$$94) \int x e^{3x} dx = \frac{1}{9}(3x-1)e^{3x} + k$$

$$100) \int (3x^2 + 4)e^{2x} dx = \frac{1}{2}\left(3x^2 - 3x + \frac{7}{2}\right)e^{2x} + k$$

$$81bis) \int \frac{(x+1)(x+3)}{e^{2x}} dx = -\frac{1}{4}(2x^2 + 6x - 3)e^{-2x} + k$$

$$82a) \int x^3 e^x dx = (x^3 - 3x^2 + 6x - 6)e^x + k$$

$$113) \int x^3 e^{-x} dx = -(x^3 + 3x^2 + 6x + 6)e^{-x} + k$$

$$4) \int x \sin x \cos x dx = -\frac{1}{4}x \cos 2x + \frac{1}{8} \sin 2x +$$

$$114) \int x^3 e^x dx = (x^3 - 3x^2 + 6x - 6)e^x + k$$

$$115) \int x^2 e^{-x} dx = -(x^2 + 2x + 2)e^{-x} + k$$

$$5) \int x \cos^2 x dx = \frac{1}{4}x^2 + \frac{1}{4}x \sin 2x + \frac{1}{8} \cos 2x + k$$

$$6) \int x^2 \sin x dx = -x^2 \cos x + 2x \sin x + 2 \cos x + k$$

$$8) \int x^2 \cos x dx = x^2 \sin x + 2x \cos x - 2 \sin x + k$$

$$30) \int (3x^2 - 4) dx = (3x^2 - 4) \sin x + 6x \cos x - 6 \sin x + k$$

$$34) \int x \sin 3x dx = -\frac{1}{3}x \cos 3x + \frac{1}{9} \sin 3x + k$$

$$49) \int x \sin^2 x dx = \frac{1}{4}x^2 - \frac{1}{4}x \sin 2x - \frac{1}{8} \cos 2x + k$$

$$54) \int x \sin 2x dx =$$

$$56) \int x \cos 2x dx = \frac{1}{2}x \sin 2x + \frac{1}{4} \cos 2x + k$$

$$73) \int x \sin 2x dx = -\frac{1}{2}x \cos 2x + \frac{1}{4} \sin 2x + k$$

$$89) \int x \sin x dx = -x \cos x + \sin x + k$$

$$90) \int x \cos x dx = x \sin x + \cos x + k$$

$$91) \int x^2 \sin x dx = -x^2 \cos x + 2x \sin x + 2 \cos x + k$$

$$92) \int x^3 \cos x dx = x^3 \sin x + 3x^2 \cos x - 6x \sin x - 6 \cos x + k$$

$$98) \int (3x^2 - 4) \cos x dx = (3x^2 - 4) \sin x + 6x \cos x - 6 \sin x + k$$

$$1) \int \frac{1}{x^2} \ln \frac{1}{x} dx = \quad 2) \int \frac{\ln x}{\sqrt{x}} dx = \quad 3) \int (x+1)^2 \ln(x+5) dx = \quad 14) \int \ln x \cdot dx = x \ln x - x + k$$

$$15) \int x \ln x dx = \frac{1}{2}x^2 \ln x - \frac{1}{4}x^2 + k$$

$$17) \int \frac{\ln^2 x}{x^2} dx = -\frac{1}{x} \ln^2 x - \frac{2}{x} \ln x - \frac{2}{x} + k$$

$$18) \int x^n \ln x dx = \frac{x^{n+1}}{n+1} \left(\ln x - \frac{1}{n+1} \right) + k$$

$$25) \int x^3 \ln^2 x dx = \frac{1}{4}x^4 \ln^2 x - \frac{1}{8}x^4 \ln x + \frac{1}{32}x^4 + k$$

$$26) \int \ln(2+3x) dx = x \ln(2+3x) - x + \frac{2}{3} \ln(2+3x) + k$$

$$27) \int \ln(5-7x) dx = x \ln(5-7x) - x - \frac{5}{7} \ln(5-7x) + k \quad 31) \int \sqrt{x} \ln^2 x dx = \frac{4}{9} \sqrt{x^3} \ln x - \frac{16}{27} \sqrt{x^3} + k$$

$$36) \int \ln(1+x)dx = x \ln(1+x) - x + \ln(1+x) + k$$

$$37) \frac{1}{2} \int x \ln(x^2 + 3) dx = \frac{1}{4} x^2 \ln(x^2 + 3) - \frac{1}{4} x^2 + \frac{3}{4} \ln(x^2 + 3) + k$$

$$40) \int \sqrt{x} \ln x dx = \frac{2}{3} x \sqrt{x} \ln x - \frac{4}{9} x \sqrt{x} + k$$

$$44) \int \frac{\ln 2x}{x^4} dx$$

$$47) \int x \ln^2(x+1) dx =$$

$$\frac{1}{2} x^2 \ln^2(x+1) - \frac{1}{2} x^2 \ln(x+1) + x \ln(x+1) - \frac{1}{2} \ln^2(x+1) + \frac{3}{2} \ln(x+1) + \frac{1}{4} x^2 - \frac{3}{2} x$$

$$51) \int \ln \frac{x^2+1}{x^2} dx = x \ln \frac{x^2+1}{x^2} + 2 \arctg x + k$$

$$52) \int x^4 \ln x dx = \frac{1}{5} x^5 \left(\ln x - \frac{1}{5} \right) + k$$

$$58) \int \ln(x + \sqrt{1+x^2}) dx = x \ln(x + \sqrt{1+x^2}) - \sqrt{1+x^2} + k$$

$$59) \int \frac{\ln x}{x^3} dx = -\frac{1}{2x^2} \ln x - \frac{1}{4x^2} + k$$

$$62) \int \ln 7x \cdot dx = x \ln 7x - x + k$$

$$65) \int x \ln(x+1) dx = \frac{1}{2} x^2 \ln(x+1) - \frac{1}{4} x^2 + \frac{1}{2} x - \frac{1}{2} \ln(x+1)$$

$$66) \int \ln(x^2 - x - 2) dx = x \ln(x^2 - x - 2) - 2x + \ln \frac{x+1}{(x+2)^2}$$

$$67) \int \ln(1+x^2) dx = x \ln(1+x^2) - 2x + 2 \arctg x + k$$

$$69) \int \ln \frac{x+1}{x-1} dx = x \ln \left(\frac{x+1}{x-1} \right) + \ln \left(\frac{x-1}{x+1} \right) + k$$

$$70) \int x^2 \ln x dx = \frac{1}{x^3} \ln x - \frac{1}{9} x^3 + k \quad 74) \int x^2 \ln(x+1) dx = \frac{1}{3} x^3 \ln(1+x) - \frac{1}{9} x^3 + \frac{1}{6} x^2 - \frac{1}{3} x + \frac{1}{3} \ln(1+x)$$

$$77) \int \ln^2 x dx = x \ln^2 x - 2x \ln x + 2x + k$$

$$78) \int \frac{\ln^3 x}{x^2} dx = -\frac{1}{x} (\ln^3 x + 3 \ln^2 x + 6 \ln x + 6) + k$$

$$81) \int \ln^3 x dx = x \ln^3 x - 3x \ln^2 x + 6x \ln x - 6x + k$$

$$81bis) \int \frac{(x+1)(x+3)}{e^{2x}} dx = -\frac{1}{4} e^{-2x} (2x^2 + 6x - 3) + k$$

$$82) \int \ln(\sqrt{x+1} + \sqrt{x-1}) dx = x \ln(\sqrt{x+1} + \sqrt{x-1}) - \frac{1}{2} \sqrt{x^2 - 1} + k$$

$$82a) \int x^3 e^x dx = (x^3 - 3x^2 + 6x - 6) e^x + k$$

$$83) \int \ln \sqrt{x^2 + 4} dx = x \ln \sqrt{x^2 + 4} - x + 2 \arctg \frac{x}{2} + k$$

$$84) \int \ln \sqrt{9x^2 - 16} dx = x \ln \sqrt{9x^2 - 16} - x + 2 \ln \frac{3x-4}{3x+4}$$

$$95) \int \ln(x + \sqrt{1+x^2}) dx = x \ln(x + \sqrt{1+x^2}) - \sqrt{1+x^2} + k$$

$$99) \int \ln(1-x^2) dx = x \ln(1-x^2) - 2x + \ln(1+x) - \ln(1-x) + k$$

$$101) \int \frac{\ln x}{x^2} dx = -\frac{1}{x^2} (1 + \ln x) + k$$

$$102) \int \frac{2 \ln x^2}{x^3} dx = \frac{-2 \ln x}{x^2} - \frac{1}{x^2} + k$$

$$10) \int \arccos x dx = x \arccos x - \sqrt{1-x^2} + k$$

$$103) \int \arcsin x dx = x \arcsin x + \sqrt{1-x^2} + k$$

$$108) \int \arctg x dx = x \arctg x - \frac{1}{2} \ln(1+x^2) + k$$

$$33) \int x \arctg x dx = \frac{1}{2} x^2 \arctg x - \frac{1}{2} x + \arctg x + k$$

$$45) \int x \arcsin x dx = \frac{1}{2} x^2 \arcsin x + \frac{1}{4} x \sqrt{1-x^2} - \frac{1}{4} \arcsin x + k$$

$$80) \int \arctg(1-x) dx = x \arctg x + \frac{1}{2} \ln(x^2 - 2x + 2) - \arctg(1-x) + k$$

$$60) \int \arctg \frac{x-1}{x+1} dx = x \arctg \frac{x-1}{x+1} - \frac{1}{2} \ln(x^2 + 1) + k$$

$$9) \int e^x \sin x dx = \frac{1}{2} e^x (\sin x - \cos x) + k$$

$$11) \int \sqrt{a^2 + x^2} dx = \frac{1}{2} x \sqrt{a^2 + x^2} + \frac{1}{2} \ln(x + \sqrt{a^2 + x^2}) + k = \\ = \frac{1}{2} x \sqrt{a^2 + x^2} - \frac{1}{2} a^2 \ln(\sqrt{a^2 + x^2} - x) + k$$

$$12) \int e^x \cos x dx = \frac{1}{2} e^x (\cos x + \sin x) + k$$

$$111) \int e^{-x} \sin x dx = -\frac{1}{2} e^{-x} (\sin x + \cos x) + k$$

$$13) \int e^{-x} \cos x dx \quad 19) \int \sin^2 x dx = \frac{1}{2} (x - \sin x \cdot \cos x) + k \quad 20) \int \cos^2 x dx = \frac{1}{2} (x + \sin x \cdot \cos x) + k$$

$$21) \int \sin^3 x dx = -\sin^2 x \cos x - \frac{2}{3} \cos^3 x +$$

$$32) \int \cos^3 x dx = -\frac{1}{3} \sin^3 x + \sin x + k$$

$$50) \int \sin^4 x dx = \frac{3}{8} x - \frac{3}{8} \sin x \cos x - \frac{1}{4} \cos x \sin^2 x + k$$

$$110BIS) \int \cos^4 x dx = \frac{1}{4} \sin x \cos^3 x + \frac{3}{8} x + \frac{3}{8} \sin x \cos x + k$$

$$22) \int \sqrt{a^2 - x^2} dx = \frac{1}{2} x \sqrt{a^2 - x^2} + \frac{1}{2} a^2 \arcsin \frac{x}{a} + k$$

$$68) \int \sqrt{1-x^2} dx = \frac{1}{2} x \sqrt{1-x^2} + \frac{1}{2} \arcsin x + k \quad 23) \int \sqrt{x^2 - a^2} dx = \frac{1}{2} x \sqrt{x^2 - a^2} - \frac{1}{2} a^2 \ln(x + \sqrt{x^2 - a^2})$$

$$24) \int \frac{x^4}{(1-x)^3} dx = \frac{x^4}{2(1-x)^2} - \frac{2x^3}{1-x} - 3x^2 - 6x - 6 \ln(1-x)$$

$$29) \int \frac{1}{x} \ln \ln x dx = (\ln \ln x - 1) \ln x + k$$

$$30) \int (3x^2 - 4) \cos x dx = (3x^2 - 4) \sin x + 6x \cos x - 6 \sin x + k$$

$$35) \int \cos \ln x dx = \frac{x}{2} (\cos \ln x + \sin \ln x) + k$$

$$38) \int \sin x \ln \cos x dx = -\cos x \ln \cos x + \cos x + k$$

$$44) \int \frac{\ln 2x}{x^4} dx = -\frac{\ln 2x}{3x^3} - \frac{1}{9} \cdot \frac{1}{x^3} + k$$

$$48) \int \frac{x^2}{\sqrt{1-x^2}} dx = -\frac{1}{2} x \sqrt{1-x^2} + \frac{1}{2} \arcsin x + k$$

$$53) \int e^{ax} \cos bx dx = \frac{e^{ax}}{a^2 + b^2} (a \cos bx + b \sin bx) + k$$

$$57) \int \sin(\ln x) dx = \frac{1}{2} x (\sin \ln x - \cos \ln x) + k$$

$$61) \int \frac{x}{\cos^2 x} dx = x \tg x + \ln \cos x + k$$

$$97) \int \frac{x}{\sin^2 x} dx = -x \cot x + \ln |\cos x| + k$$

$$64) \int \frac{x \cos x}{\sin^2 x} dx = -x \cos x \cot x + \ln \left| \tan \frac{x}{2} \right| + 2 \cos x \sin x + k$$

$$72) \int e^x \ln(3 + e^x) dx = (e^x - 1) \ln(3 + e^x) + k$$

$$76) \int x \tan^2 x dx = x \tan x + \ln |\cos x| - \frac{1}{2} x^2 + k$$

$$79) \int \sin x \cos x e^{\sin x} dx = (\sin x - 1) e^{\sin x} + k$$

$$104) \int \frac{\sqrt{1-x^2}}{x^2} dx = -\frac{\sqrt{1-x^2}}{x} - \arcsin x + k$$

$$105) \int \frac{\sqrt{1+x^2}}{x^2} dx = -\frac{\sqrt{1+x^2}}{x} + \ln(x + \sqrt{1+x^2}) + k$$

$$106) \int \frac{x^2}{(1+x^2)^2} dx = -\frac{x}{2(1+x^2)} - \frac{1}{2} \arctan x + k$$

$$107) \int \frac{1}{(1+x^2)^2} dx = \frac{1}{2} \arctan x + \frac{x}{2(1+x^2)} + k$$

$$72a) \int x \ln(1+x) dx = \frac{1}{2} (x^2 - 1) \ln(1+x) - \frac{1}{4} x^2 + \frac{1}{2} x + k$$

Integrazione delle funzioni razionali fratte

$$1) \int \frac{1}{x^2 - 4x - 5} dx = \quad 2) \int \frac{1}{x^2 - x - 6} dx = \quad 3) \int \frac{x-4}{x^2 - 3x + 2} dx = 3 \ln(x-1) - 2 \ln(x-2) + k$$

$$6) \int \frac{1}{9x^2 - 25} dx \quad 8) \int \frac{5}{1-5x^2} dx = \quad 9) \int \frac{x-4}{x^2 - 3x + 2} dx = 3 \ln(x-1) - 2 \ln(x-2) + k$$

$$12) \int \frac{1}{x^2 - 4x - 5} dx = \frac{1}{6} \ln(x-5) - \frac{1}{6} \ln(x+1) + k \quad 13) \int \frac{1}{x^2 - (a+b)x + ab} dx = \frac{1}{a-b} \ln \frac{x-a}{x-b} + k$$

$$14) \int \frac{x+1}{x^2 + x - 2} dx = \frac{2}{3} \ln(x-1) + \frac{1}{3} \ln(x+2) + k$$

$$18) \int \frac{-3x^2 + 3x + 4}{x(x-1)(x+1)} dx = -4 \ln x + 2 \ln(x-1) - \ln(x+1)$$

$$23) \int \frac{3x-1}{(x-1)(x-2)^2} dx = \frac{-5}{x-2} + 2 \ln(x-1) - 2 \ln(x-2) + k$$

$$25) \int \frac{1}{(2-x)^3} dx = \frac{x-1}{(2-x)^2} + k$$

$$27) \int \frac{1}{x-x^3} dx = \ln x - \frac{1}{2} \ln(1-x) - \frac{1}{2} \ln(1+x) + k$$

$$31) \int \frac{7x-5}{x(x^2+x-6)} dx = \frac{5}{6} \ln x + \frac{9}{10} \ln(x-2) - \frac{26}{15} \ln(x+3) + k$$

$$32) \int \frac{2x+1}{x^3 + 3x^2 - 4} dx = -\frac{1}{x+2} + \frac{1}{3} \ln \frac{x-1}{x+2} + k$$

$$33) \int \frac{x^2 - 3x}{(x-1)^2(x+1)} dx = \frac{1}{x-1} + \ln(x+1) + k$$

$$54) \int \frac{3x-5}{x^2 - 10x + 25} dx = -\frac{10}{x-5} + 3 \ln(x-5) + k$$

$$55) \int \frac{7x-12}{(x-3)(x+4)} dx = \frac{9}{7} \ln(x-3) + \frac{40}{7} \ln(x+4) + k$$

$$56) \int \frac{2x^2+3x+5}{(x-1)(x+1)(x+2)} dx = -2 \ln(x+1) + \frac{7}{3} \ln(x+2) + \frac{5}{3} \ln(x-1)$$

$$57) \int \frac{1}{6x^3-7x^2-3x} dx = -\frac{1}{3} \ln x + \frac{3}{11} \ln(3x+1) + \frac{2}{33} \ln(2x-3)$$

$$58) \int \frac{32x}{(2x-1)(4x^2-16x+15)} dx = \ln(2x-1) - 6 \ln(2x-3) + 5 \ln(2x-5)$$

$$60) \int \frac{5x^3+9x^2-22x-8}{x^3-4x} dx = 5x + 2 \ln x + 3 \ln(x-2) + 4 \ln(x+2)$$

$$61) \int \frac{2x^2-5x-1}{x^3-x} dx = \ln x - 2 \ln(x-1) + 3 \ln(x+1)$$

$$61a) \int \frac{1}{6x^3-11x^2-5x+12} dx = -\frac{3}{7} \ln(3x-4) + \frac{2}{5} \ln(2x-3) + \frac{1}{35} \ln(x+1)$$

$$62) \int \frac{x^2+1}{x^3+x^2+2x-6} dx \quad 63) \int \frac{x}{x^3-x^2+5x-5} dx \quad 64) \int \frac{x^2-3}{x^3+x^2+2x+2} dx$$

$$65) \int \frac{x+2}{x^3-x^2+4x-4} dx \quad 66) \int \frac{4x^2+2x-21}{(4x+3)(x^2-2x+3)} dx$$

$$68) \int \frac{3x}{(x+1)^3(x+3)} dx = \frac{-9x-6}{(x+1)^2} - \frac{9}{8} \ln(x+1) + \frac{9}{8} \ln(x+3)$$

$$50) \int \frac{x^2-3x+2}{x(x^2+2x+1)} dx = \frac{6}{x+1} + 2 \ln x - \ln(x+1)$$

$$52) \int \frac{x+13}{9x^2+6x+1} dx = \frac{-38}{9(3x+1)} + \frac{1}{9} \ln(3x+1)$$

$$53) \int \frac{1}{9x^2-1} dx \quad 54) \int \frac{x^2-2x-5}{x^3+2x^2-x-2} dx = \ln(x+1) - \ln(x-1) + \ln(x+2)$$

$$55) \int \frac{3x^2+13x-46}{x^3-3x^2-4x+12} dx = 2 \ln(x-2) - 3 \ln(x+2) + 4 \ln(x-3)$$

$$1) \int \frac{1}{x^2-4x-5} dx \quad 2) \int \frac{1}{x^2-x-6} dx \quad 4) \int \frac{1}{5+4x^2} dx = \frac{\sqrt{5}}{10} \arctg \frac{2\sqrt{5}}{5} + k$$

$$5) \int \frac{3x+2}{9+x^2} dx = \frac{3}{2} \ln(9+x^2) + \frac{2}{3} \arctg \frac{x}{3} \quad 10) \int \frac{3x+2}{9+x^2} dx = \frac{3}{2} \ln(9+x^2) + \frac{2}{3} \arctg \frac{x}{3}$$

$$11) \int \frac{2x+1}{x^2+25} dx = \ln(x^2+25) + \frac{1}{5} \arctg \frac{x}{5} \quad 15) \int \frac{2x+1}{x^2+2} dx = \ln(x^2+2) + \frac{1}{\sqrt{2}} \arctg \frac{x}{\sqrt{2}} + k$$

$$\begin{aligned}
16) \int \frac{3x^2-1}{x^3+3x^2+7x+5} dx &= \frac{1}{2} \ln(x+1) + \frac{5}{4} \ln(x^2+2x+5) - 3 \operatorname{arctg} \frac{x+1}{2} \\
17) \int \frac{5x+9}{x^2+2x+3} dx &= \frac{5}{2} \ln(x^2+2x+3) + 2\sqrt{2} \operatorname{arctg} \frac{x+1}{\sqrt{2}} \\
19) \int \frac{dx}{2x^3+2x^2+x} &= \ln x - \frac{1}{2} \ln(2x^2+2x+1) - \operatorname{arctg}(2x+1) \\
20) \int \frac{1}{x^2(x^2+1)^2} dx & \quad 21) \int \frac{x^2}{(1+x^2)^2} dx = -\frac{1}{2} \frac{x}{1+x^2} + \frac{1}{2} \operatorname{arctg} x + k \\
22) \int \frac{dx}{x^3-1} dx &= \frac{1}{3} \ln(x-1) - \frac{1}{6} \ln(x^2+x+1) - \frac{1}{\sqrt{3}} \operatorname{arctg} \frac{2x+1}{\sqrt{3}} \\
24) \int \frac{x^2-4x}{(x-2)(x^2+2x+4)} dx &= -\frac{1}{3} \ln(x-2) + \frac{2}{3} \ln(x^2+2x+4) - \frac{2}{\sqrt{3}} \operatorname{arctg} \frac{x+1}{\sqrt{3}} + k \\
26) \int \frac{1}{x(1+x^2)} dx &= \ln x - \frac{1}{2} \ln(1+x^2) \\
28) \int \frac{x^3}{x^3+8} dx &= x - \frac{2}{3} \ln(x+2) + \frac{1}{3} \ln(x^2-2x+4) - \frac{2\sqrt{3}}{3} \operatorname{arctg} \frac{x-1}{\sqrt{3}} \\
29) \int \frac{3x-2}{x^2+2x+4} dx &= \frac{3}{2} \ln(x^2+2x+4) - \frac{5}{\sqrt{3}} \operatorname{arctg} \frac{x+1}{\sqrt{3}} \\
30) \int \frac{3x^2-7x+6}{(x+1)(x^2-2x+5)} dx &= 2 \ln(x+1) + \frac{1}{2} \ln(x^2-2x+5) - \frac{3}{2} \operatorname{arctg} \frac{2x-1}{2} \\
34) \int \frac{2x+10}{(x-2)(x^2+x+1)} dx &= 2 \ln(x-2) - \ln(x^2+x+1) - 2\sqrt{3} \operatorname{arctg} \frac{2x+1}{\sqrt{3}} \\
35) \int \frac{x^3+x-2}{(x+1)^2(x^2-x+1)} dx &= \frac{4}{3(x+1)} + \frac{1}{2} \ln(x^2-x+1) - \frac{\sqrt{3}}{9} \operatorname{arctg} \frac{2x-1}{\sqrt{3}} \\
36) \int \frac{x+1}{(x-1)^2(x^2+2x+10)} dx &= \frac{4}{3(x+1)} + \frac{1}{2} \ln(x^2-x+1) - \frac{\sqrt{3}}{9} \operatorname{arctg} \frac{2x-1}{\sqrt{3}} + k \\
37) \int \frac{1}{(1+x^2)^2} dx &= \frac{1}{2} \frac{x}{1+x^2} + \frac{1}{2} \operatorname{arctg} x + k \quad 38) \int \frac{1}{(1+x^2)^3} dx = \frac{1}{4} \frac{x}{(1+x^2)^2} + \frac{3}{8} \frac{x}{1+x^2} + \frac{3}{8} \operatorname{arctg} x \\
39) \int \frac{x}{x^4-x^2-2} dx &= \frac{1}{6} \ln(x^2-2) - \frac{1}{6} \ln(x^2+1) \\
40) \int \frac{x^5-x^4-3x+5}{x^4-2x^3+2x^2-2x+1} dx &= \frac{1}{2} x^2 + x - \frac{1}{x-1} - 2 \ln(x-1) + \ln(x^2+1) + \operatorname{arctg} x + k \\
41) \int \frac{1}{x^4-1} dx &= \frac{1}{4} \ln(x-1) - \frac{1}{4} \ln(x+1) - \frac{1}{2} \operatorname{arctg} x + k
\end{aligned}$$

$$42) \int \frac{3x^4 + 3x^2 - x + 2}{x^5 + x^3} dx = \frac{x-1}{x^2} + \ln x + \ln(x^2 + 1) + \operatorname{arctg} x + k$$

$$43) \int \frac{x^2}{x^4 + 6x^2 + 8} dx = \operatorname{arctg} \frac{x}{2} - \frac{1}{\sqrt{2}} \operatorname{arctg} \frac{x}{\sqrt{2}}$$

$$44) \int \frac{x}{(x^3 + 1)^2} dx = \frac{x^3}{3(x^3 + 1)} - \frac{1}{9} \ln(x+1) + \frac{1}{2} \ln(x^2 - x + 1) + \sqrt{3} \operatorname{arctg} \frac{2x-1}{\sqrt{3}}$$

$$45) \int \frac{3x^2 + x - 2}{(x-1)^3(x^2 + 1)} dx = \frac{4-5x}{2(x-1)^2} - \frac{3}{2} \ln(x-1) + \frac{3}{4} \ln(x^2 + 1) - \operatorname{arctg} x + k$$

$$46) \int \frac{x-4}{(x-2)^2(x^2 - 2x + 2)} dx = \frac{1}{x-2} + \frac{3}{2} \ln(x-2) - \frac{3}{2} \ln(x^2 - 2x + 2) - \frac{1}{2} \operatorname{arctg}(x-1) + k$$

$$47) \int \frac{1}{x^2 + x + 1} dx = \frac{2}{\sqrt{3}} \operatorname{arctg} \frac{2x+1}{\sqrt{3}} + k \quad 48) \int \frac{x-3}{x^2 - x + 1} dx = \frac{1}{2} \ln(x^2 - x + 1) - \frac{5\sqrt{3}}{3} \operatorname{arctg} \frac{2x-1}{\sqrt{3}}$$

$$49) \int \frac{x}{x^3 - 1} dx = \frac{1}{3} \ln(x-1) - \frac{1}{6} \ln(x^2 + x + 1) + \frac{\sqrt{3}}{3} \operatorname{arctg} \frac{2x+1}{\sqrt{3}}$$

$$51) \int \frac{x-5}{2x^2 + x + 1} dx = \frac{1}{4} \ln(2x^2 + x + 1) - \frac{3}{4} \sqrt{7} \operatorname{arctg}(2x^2 + x + 1)$$

$$53) \int \frac{2x}{x^2 + x + 1} dx = \ln(x^2 + x + 1) - \frac{2\sqrt{3}}{3} \operatorname{arctg} \frac{2x+1}{\sqrt{3}}$$

$$67) \int \frac{2x^2 - 5x - 4}{(x+2)(x^2 - x + 1)} dx = 2 \ln(x+2) - 2\sqrt{3} \operatorname{arctg} \frac{2x-1}{\sqrt{3}} \quad \text{a1) } \int \frac{1}{x^2 + x + 2} dx$$

$$\text{a2) } \int \frac{1}{(x+1)^2(x^2 + x + 1)} dx$$

$$\text{a6) } \int \frac{1}{x^4 + x^3 - x^2 + x - 2} dx = \frac{1}{6} \ln(x-1) - \frac{1}{15} \ln(x+2) - \frac{1}{20} \ln(x^2 + 1) - \frac{3}{10} \operatorname{arctg} x$$

$$\text{a7) } \int \frac{x}{x^4 + x^3 - x^2 + x - 2} dx = \frac{1}{6} \ln(x-1) + \frac{2}{15} \ln(x+2) - \frac{3}{2} \ln(x^2 + 1) + \frac{1}{10} \operatorname{arctg} x + k$$

$$\text{a8) } \int \frac{x+2}{x^4 + 2x^3 - 2x^2 + 2x - 3} dx = \frac{3}{8} \ln(x-1) + \frac{1}{40} \ln(x+3) - \frac{1}{5} \ln(x^2 + 1) - \frac{3}{10} \operatorname{arctg} x + k$$

$$\text{a8bis) } \int \frac{x+1}{x^4 - 4x^3 + 4x^2 - 4x + 3} dx = \frac{1}{5} \ln(x-3) - \frac{1}{2} \ln(x-1) + \frac{3}{20} \ln(x^2 + 1) - \frac{1}{10} \operatorname{arctg} x + k$$

$$\text{a9) } \int \frac{x-2}{x^4 + 3x^3 - 3x^2 + 3x - 4} dx = -\frac{1}{10} \ln(x-1) + \frac{6}{85} \ln(x+4) + \frac{1}{68} \ln(x^2 + 1) + \frac{13}{34} \operatorname{arctg} x + k$$

$$\text{a10) } \int \frac{x-2}{x^4 + 5x^3 + 5x^2 + 5x + 4} dx = -\frac{1}{2} \ln(x+1) + \frac{2}{17} \ln(x+4) + \frac{13}{68} \ln(x^2 + 1) - \frac{1}{34} \operatorname{arctg} x + k$$

$$\int \frac{x+1}{x^2-2x+1} dx = \frac{2}{1-x} + \ln(x-1) + k$$

201) $\int \frac{27x^2 - 39x - 1}{9x^3 - 21x^2 - 4x + 26} dx$ **P. Scritta**

202) $\int \frac{27x^2 + 15x - 13}{9x^3 + 6x^2 - 19x + 10} dx$ **P. Scritta**

203) $\int \frac{-63x^2 + 234x + 231}{9x^3 - 15x^2 - 31x - 15} dx$ **P. Scritta**

204) $\int \frac{38x^2 - 43x - 131}{2x^3 - 2x^2 - 19x - 20} dx$ **P. Scritta**

205) $\int \frac{27x^2 + 81x + 59}{9x^3 + 39x^2 + 56x + 26} dx$ **P. Scritta**

206) $\int \frac{5x^2 + 46x + 22}{5x^3 + 16x^2 + 14x + 4} dx$ **P. Scritta**

207) $\int \frac{6x^3 - 17x^2 + 13x}{2x^4 - 10x^3 + 19x^2 - 16x + 5} dx$ **P. Simulata**

208) $\int \frac{36x^3 + 114x^2 + 94x + 1}{9x^4 + 48x^3 + 95x^2 + 82x + 26} dx$ **P. Simulata**

Integrazione per sostituzione

01) $\int \frac{\sqrt{x^2-1}}{x} dx$ 02) $\int \frac{1}{(1+x^2)\sqrt{1+x^2}} dx$ 07) $\int \frac{x}{\sqrt{1-x^2}} dx$ 10) $\int \frac{x}{\sqrt{1-x}} dx$

11) $\int \frac{e^{\frac{x}{2}}}{1+e^{\frac{x}{3}}} dx$ 12) $\int \frac{1}{\sqrt{x^2+a^2}} dx$ 13) $\int \frac{\sqrt{x}-1}{\sqrt[3]{x}-1} dx$ 16) $\int \sqrt{a^2+x^2} dx$ 17) $\int \frac{x}{(1-x)^3} dx$

18) $\int \frac{x}{(x+1)} dx$ 19) $\int \frac{x^3}{\sqrt{1-x^2}} dx$ 24) $\int \frac{1}{1+\sin^2 t} dt$ 28) $\int \frac{1}{\sqrt{x(1+\sqrt{x})}} dx$

$$29) \int \frac{\sqrt{x^3}}{1+x} dx \quad 30) \int \frac{\sqrt{x}}{\sqrt{1-x}} dx \quad 31) \int \frac{x^2}{\sqrt{1-x^2}} dx \quad 35) \int x\sqrt{a^2-x^2} dx$$

$$37) \int \sqrt{\frac{1+x}{1-x}} dx \quad 38) \int \frac{1}{x\sqrt{9-x^2}} dx \quad 41) \int \frac{\operatorname{tg} x}{1+\sin^2 x} dx \quad 46) \int \operatorname{tg}^4 x \cdot dx$$

$$49) \int \frac{x-2}{\sqrt{x+1}} dx \quad 59) \int \frac{1}{2\sqrt{x+1} + \sqrt[3]{x+1}} dx \quad 61) \int \frac{1}{\sqrt{e^x+1}} dx \quad 62) \int \sqrt{\frac{x}{2-x}} dx$$

$$69) \int \sqrt{\frac{x}{1-x}} dx \quad 73) \int \sqrt{4-x^2} dx \quad 76) \int \frac{1}{x\sqrt{2x-9}} dx$$