Příklad 1: Integrujte pomocí V2

a) $\int \left(x^5 - \sqrt[4]{x} + \dfrac{1}{x^3} \right) dx = \dfrac{x^6}{6} - \dfrac{4}{5} \sqrt[4]{x^5} - \dfrac{1}{2x^2} + C$

b) $\int \dfrac{(x+3)^2}{x^2} dx = x + 6\ln\left| x \right| - \dfrac{9}{x} + C$

c) $\int \dfrac{\sqrt{x} - 2 \cdot \sqrt[3]{x}}{x} dx = 2\sqrt{x} - 6 \cdot \sqrt[3]{x} + C$

d) $\int x \left(\sqrt{x} + \dfrac{1}{x^4} \right) dx = \dfrac{2}{5} \sqrt{x^5} - \dfrac{1}{2x^2} + C$

Příklad 2: Integrujte pomocí V8

a) $\int \dfrac{4}{3-x} dx = -4\ln\left| 3 - x \right| + C$

b) $\int \dfrac{x}{x^2 + 3} dx = \dfrac{1}{2}\ln\left| x^2 + 3 \right| + C$

c) $\int \dfrac{5x^2}{x^3 + 1} dx = \dfrac{5}{3}\ln\left| x^3 + 1 \right| + C$

d) $\int 3\cotg x\, dx = 3\ln\left| \sin x \right| + C$

Příklad 3: Integrujte pomocí V9

a) $\int \sin(3x + 4)\, dx = -\dfrac{1}{3}\cos(3x + 4) + C$

b) $\int \sqrt[3]{5x - 7}\, dx = \dfrac{3}{20} \cdot \sqrt[3]{(5x - 7)^4} + C$

c) $\int e^{-x+2}\, dx = -e^{-x+2} + C$

d) $\int \dfrac{1}{(4x - 1)^3} dx = -\dfrac{1}{8} \cdot \dfrac{1}{(4x - 1)^2} + C$

Příklad 4: Integrujte pomocí V12,V13

a) $\int \dfrac{3}{x^2 + 5} dx = \dfrac{3}{\sqrt{5}} \operatorname{arctg} \dfrac{x}{\sqrt{5}} + C$

b) $\int \dfrac{2}{2 - x^2} dx = \dfrac{1}{\sqrt{2}} \ln \left| \dfrac{\sqrt{2} + x}{\sqrt{2} - x} \right| + C$

c) $\int \dfrac{1}{x^2 + 3x + 3} dx = \dfrac{2}{\sqrt{3}} \operatorname{arctg} \dfrac{2x + 3}{\sqrt{3}} + C$

d) $\int \dfrac{1}{x^2 + 6x + 5} dx = -\dfrac{1}{4} \ln \left| \dfrac{5 + x}{-1 - x} \right| + C$

Příklad 5: Integrujte pomocí V14,V15

a) $\int \dfrac{1}{\sqrt{x^2 - 5}} dx = \ln \left| x + \sqrt{x^2 - 5} \right| + C$

b) $\int \dfrac{1}{\sqrt{5 - x^2}} dx = \arcsin \dfrac{x}{\sqrt{5}} + C$

c) $\int \dfrac{2}{\sqrt{x^2 - 4x + 1}} dx = 2 \ln \left| x - 2 + \sqrt{x^2 - 4x + 1} \right| + C$

d) $\int \dfrac{1}{\sqrt{-x^2 - 2x}} dx = \arcsin(x + 1) + C$

Příklad 6: Pomocí vzorců a s využitím úprav integrandu vypočtěte integrály

a) $\int 2\operatorname{tg} x \, dx = -2 \ln \left| \cos x \right| + C$

b) $\int \dfrac{1}{\sqrt{x^2 + 6x + 10}} dx = \ln \left| x + 3 + \sqrt{x^2 + 6x + 10} \right| + C$

c) $\int \dfrac{2 \cos x}{4 + \sin x} dx = 2 \ln \left| 4 + \sin x \right| + C$

d) $\int \dfrac{4 - \cos 3x}{2} dx = 2x - \dfrac{1}{6} \sin 3x + C$

e) $\int \dfrac{x^3 + 2x}{\sqrt{x}}\,dx = \dfrac{2}{7}\sqrt{x^7} + \dfrac{4}{3}\sqrt{x^3} + C$

f) $\int \dfrac{2}{x^2 + 4x + 4}\,dx = \dfrac{-2}{x + 2} + C$

g) $\int (x^3 + 3x)(x - 2)\,dx = \dfrac{1}{5}x^5 - \dfrac{1}{2}x^4 + x^3 - 3x^2 + C$

h) $\int \cotg^2 x\,dx = -\cotg x - x + C$

i) $\int \dfrac{6}{x^2 + 4x - 5}\,dx = -\ln\left|\dfrac{5 + x}{1 - x}\right| + C$

j) $\int \dfrac{10}{\cos^2(2x)}\,dx = 5\tg(2x) + C$

k) $\int x^2\left(\dfrac{1}{4x} - 4x + 4\sqrt{x}\right)dx = \dfrac{1}{8}x^2 - x^4 + \dfrac{8}{7}\sqrt{x^7} + C$

Příklad 7: Integrujte racionální funkce (neryze lomené rozložte)

a) $\int \dfrac{3}{2 + x^2}\,dx = \dfrac{3}{\sqrt{2}}\arctg\dfrac{x}{\sqrt{2}} + C$

b) $\int \dfrac{x}{x - 3}\,dx = x + 3\ln|x - 3| + C$

c) $\int \dfrac{1}{2x - 3}\,dx = \dfrac{1}{2}\ln|2x - 3| + C$

d) $\int \dfrac{x^2}{x^2 + 3}\,dx = x - \dfrac{3}{\sqrt{3}}\arctg\dfrac{x}{\sqrt{3}} + C$

e) $\int \dfrac{x^3}{x^2 + 3}\,dx = \dfrac{x^2}{2} - \dfrac{3}{2}\ln\left|x^2 + 3\right| + C$

f) $\int \dfrac{4}{(x - 2)^3}\,dx = \dfrac{-2}{(x - 2)^2} + C$

g) $\int \dfrac{x^3 - 5}{x^2}\,dx = \dfrac{x^2}{2} + \dfrac{5}{x} + C$

h) $\int \dfrac{x^4}{x^2+1}\,dx = \dfrac{x^3}{3} - x + \operatorname{arctg} x + C$

i) $\int \dfrac{x^2}{x-1}\,dx = \dfrac{x^2}{2} + x + \ln|x-1| + C$

j) $\int \dfrac{x^2+2x}{x^2-1}\,dx = x + \ln|x^2-1| - \dfrac{1}{2}\ln\left|\dfrac{1+x}{1-x}\right| + C$

k) $\int \dfrac{1}{x^2-4x}\,dx = -\dfrac{1}{4}\ln\left|\dfrac{x}{4-x}\right| + C$

l) $\int \dfrac{2x}{x+5}\,dx = 2x - 10\ln|x+5| + C$