№ 1.54 $\int \frac{x\,dx}{(1+x^2)^2} = \frac{1}{2}\int \frac{2x\,dx}{(1+x^2)^2} = \frac{1}{2}\int \frac{d(1+x^2)}{(1+x^2)^2} =$

$= \frac{1}{2}\cdot\frac{(1+x)^{-2x+1}}{(-2+1)} = \frac{1}{2}\cdot\frac{(1+x^2)^{-1}}{-1} = -\frac{1}{2(1+x^2)} =$

$= -\frac{1}{2+2x^2}$

№ 1,56 $\int \frac{x^3\,dx}{x^8-2} = \frac{1}{4}\int \frac{4x^3\,dx}{(x^4)^2-(\sqrt{2})^2} = \frac{1}{4}\int \frac{d(x^4)}{(x^4)^2-(\sqrt{2})^2} =$

$= \frac{1}{4}\cdot\frac{1}{2\sqrt{2}}\cdot \ln\left|\frac{x^4-\sqrt{2}}{x^4+\sqrt{2}}\right| + C = \frac{1}{8\sqrt{2}}\cdot\ln\left|\frac{x^4-\sqrt{2}}{x^4+\sqrt{2}}\right| + C$

№ 1,58 $\int \frac{x\,dx}{\sqrt{x^4-5}} = \frac{1}{2}\int \frac{2x\,dx}{\sqrt{(x^2)^2-\sqrt{5}}} = \frac{1}{2}\int \frac{d(x^2)}{\sqrt{(x^2)^2-(\sqrt{5})^2}} =$

$= \frac{1}{2}\cdot\ln\left|x^2+\sqrt{x^4-5}\right| + C$

№ 1,60 $\int \frac{e^{3x}\,dx}{\sqrt{1+e^{6x}}} = \frac{1}{3}\int \frac{3e^{3x}\,dx}{\sqrt{(e^{3x})^2+1^2}} = \frac{1}{3}\int \frac{d(e^{3x})}{\sqrt{(e^{3x})^2+1^2}} =$

$= \frac{1}{3}\cdot\ln\left|e^{3x}+\sqrt{e^{6x}+1}\right| + C$

№ 1,62 $\int 2^{x^5-37}\cdot x^4\,dx = \frac{1}{5}\int 2^{x^5-37}\,d(x^5-37) =$

$= \frac{2^{x^5-37}}{5\cdot\ln 2} + C$

№ 1,64 $\int \frac{2002^{\sqrt{x}}}{\sqrt{x}}\cdot dx = 2\int \frac{2002^{\sqrt{x}}}{2\sqrt{x}}\,dx = 2\int 2002^{\sqrt{x}}\,d(\sqrt{x}) =$

$= \frac{4004^{\sqrt{x}+1}}{\ln 2002} + C$