№ 1,66

$$\int \sin\left(\frac{1}{x}\right)\cdot\frac{dx}{x^2} = -2\int \sin\left(\frac{1}{x}\right)\left(-\frac{1}{2x^2}\right)dx =$$

$$= -2\int \sin\left(\frac{1}{x}\right)d\left(\frac{1}{x}\right) = 2\cos\left(\frac{1}{x}\right)+C$$

№ 1,68 $\int \frac{dx}{x\sqrt{x^2-1}} = \int \frac{dx}{x^2\sqrt{1-\frac{1}{x^2}}} = -\int \frac{1}{\sqrt{1-\frac{1}{x^2}}}d\left(\frac{1}{x}\right)$

$$= -\int \frac{d\left(\frac{1}{x}\right)}{\sqrt{1-\left(\frac{1}{x}\right)^2}} = \arcsin\frac{1}{x}+C$$

№ 1,70 $\int \frac{dx}{\sqrt{x(x+1)}} = \int \frac{dx}{\sqrt{x^2+x}} = \int \frac{dx}{\sqrt{x^2+x+\left(\frac{1}{2}\right)^2-\left(\frac{1}{2}\right)^2}} =$

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

№ 1,72 $\int \frac{dx}{e^{2x}+e^{-2x}} = \int \frac{dx}{e^{2x}+\frac{1}{e^{2x}}} = \int \frac{e^{2x}dx}{e^{4x}+1} =$

$$= \frac{1}{2}\int \frac{de^{2x}}{(e^{2x})^2+1^2} = \frac{1}{2}\operatorname{arctg} e^{2x}+C$$