Vyšetřete konvergenci/divergenci následujících integrálů:

$$\int_1^{\infty} \frac{1}{x\sqrt{x}}\,dx \qquad [2]$$

$$\int_1^{\infty} \frac{1}{x+1}\,dx \qquad [diverg.]$$

$$\int_0^{\infty} xe^{-x^2}\,dx \qquad \left[\frac{1}{2}\right]$$

$$\int_0^{-\frac{4}{3}} \frac{x}{\sqrt{3x+4}}\,dx \qquad \left[\frac{32}{27}\right]$$

$$\int_0^{1} \frac{1}{1-x}\,dx \qquad [diverg.]$$

$$\int_0^{8} \frac{1}{\sqrt[3]{x}}\,dx \qquad [6]$$

$$\int_0^{1} x\ln x\,dx \qquad \left[-\frac{1}{4}\right]$$

$$\int_0^{2} \frac{1}{\sqrt[3]{(x-1)^2}}\,dx \qquad [6]$$

$$\int_{-a}^{a} a\sqrt[2]{\frac{a^2}{x^2}}\,dx,\ a \in \mathbb{R}^+ \qquad [6a^2]$$

$$\int_0^{\infty} \frac{1}{x^2+16}\,dx \qquad \left[\frac{\pi}{32}\right]$$

$$\int_0^{1} \frac{1}{(1+x)\sqrt{x}}\,dx \qquad \left[\frac{\pi}{2}\right]$$

$$\int_0^{1} \ln x\,dx \qquad [1]$$

$$\int_1^{\infty} e^{-\sqrt{x}}\,dx \qquad [diverg.]$$

$$\int_0^{3} \frac{5}{(x-3)^3}\,dx \qquad [diverg.]$$