

Vypočítejte křivkové integrály:

$$(1) \quad \int_C \sqrt{1+y} \, ds \quad \mathcal{C} : \begin{array}{l} x = t + \cos t \\ y = \sin t \end{array} \quad t \in \langle 0, \frac{\pi}{2} \rangle \quad \blacktriangleright \quad \sqrt{2}$$

$$(2) \quad \int_C 3xy^2 \, ds \quad \mathcal{C} : \begin{array}{l} x = \cos t \\ y = \sin t \end{array} \quad t \in \langle 0, \frac{\pi}{2} \rangle \quad \blacktriangleright \quad 1$$

$$(3) \quad \int_C \sqrt{1+x^2+y^2} \, ds \quad \int_C (x, y) \, d\vec{r} \quad \mathcal{C} : \begin{array}{l} x = t \cos t \\ y = t \sin t \end{array} \quad t \in \langle 0, \pi \rangle \quad \blacktriangleright \quad \frac{\pi}{3}(3 + \pi^2)$$

$$(4) \quad \int_C \frac{1}{\sqrt{4y^2+1}} \, ds \quad \mathcal{C} : \begin{array}{l} x = \frac{1}{2} \cos(2t) \\ y = \sin t \end{array} \quad t \in \langle 0, \frac{\pi}{2} \rangle \quad \blacktriangleright \quad 1$$

$$(5) \quad \int_C (y^3, x^2) \, d\vec{r} \quad \mathcal{C} : \begin{array}{l} x = \frac{1}{t} \\ y = t \end{array} \quad t \in \langle 1, 2 \rangle \quad \blacktriangleright \quad -1$$

$$(6) \quad \int_C \sqrt{x+y+\frac{1}{2}} \, ds \quad \mathcal{C} : \begin{array}{l} x = t + \sqrt{t} \\ y = t - \sqrt{t} \end{array} \quad t \in \langle 1, 4 \rangle \quad \blacktriangleright \quad \frac{31}{3}$$