

TEST 9-1

Ak v danom pravouhlom súradnicovom systéme v rovine je $\mathbf{r}(t) = \varphi(t)\mathbf{i} + \psi(t)\mathbf{j}$, $\mathbf{f}(P) = p(x, y, z)\mathbf{i} + q(x, y, z)\mathbf{j}$, $t \in \langle \alpha, \beta \rangle$, tak:

$$1. \int_C f(P) ds = \int_{\alpha}^{\beta} f[\varphi(t), \psi(t)] dt,$$

$$2. \int_C \mathbf{f}(P) \cdot d\mathbf{s} = \int_{\alpha}^{\beta} p(x, y) dx + q(x, y) dy = \int_{\alpha}^{\beta} \{p[\varphi(t), \psi(t)]\varphi'(t) + q[\varphi(t), \psi(t)]\psi'(t)\} dt.$$

$$3. \int_C f(P) ds = \int_{\alpha}^{\beta} f[\varphi(t), \psi(t)] \sqrt{\varphi'^2(t) + \psi'^2(t)} dt,$$

$$4. \int_C \mathbf{f}(P) \cdot d\mathbf{s} = \int_{\alpha}^{\beta} p(x, y) dx + q(x, y) dy = \int_{\alpha}^{\beta} \{p[\varphi(t), \psi(t)] + q[\varphi(t), \psi(t)]\} dt.$$