L7 1-6
L6 10-14 L81-2

L6Z11*

$\varphi(x)$ jest [redacted] różniczkowalna w sposób ciągły na a,b i $\varphi'(x) \neq 0$

Więc:

$\forall_{x\in[a,b]} \varphi'(x) < 0$ lub $\forall_{x\in[a,b]} \varphi'(x) > 0$

I

II

I) Dla $a<b$ $\varphi(a) \overset{*}{>} \varphi(b)$

$$\int_{[\varphi(a),\varphi(b)]} f(x)dx \overset{*}{=} \int_{\varphi(a)}^{\varphi(b)} f(x)dx = [\text{redacted}] = -\int_{a}^{b} f(\varphi(u))\varphi'(u)\,du = -\int_{a}^{b} f(\varphi(u))\cdot(-|\varphi'(u)|)\,du =$$

$$= \int_{a}^{b} f(\varphi(u))|\varphi'(u)|\,du$$

II) Dla $a<b$ $\varphi(a) > \varphi(b)$

$$\int_{[\varphi(a),\varphi(b)]} f(x)dx = \int_{\varphi(a)}^{\varphi(b)} f(x)dx = \int_{a}^{b} f(\varphi(u))|\varphi'(u)|\,du$$

Z I i II:

$$\int_{[\varphi(a),\varphi(b)]} f(x) = \int_{a}^{b} f(\varphi(u))|\varphi'(u)|\,du$$