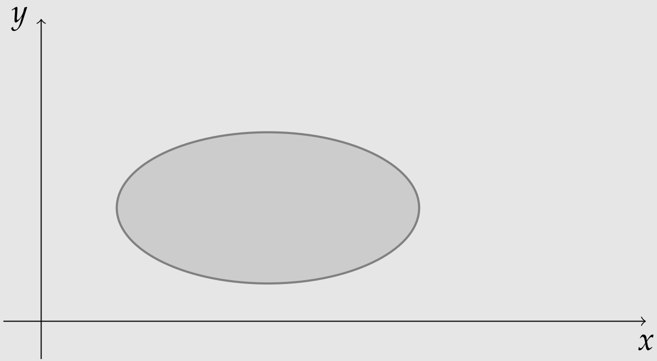
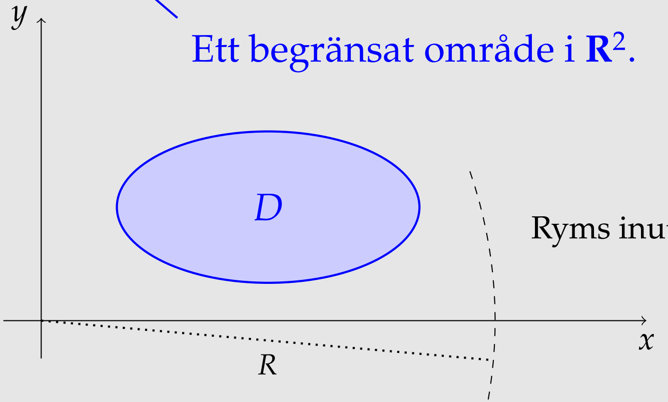
$$\iint_D f(x,y)\,dx\,dy$$



$$\iint_D f(x,y)\,dx\,dy$$

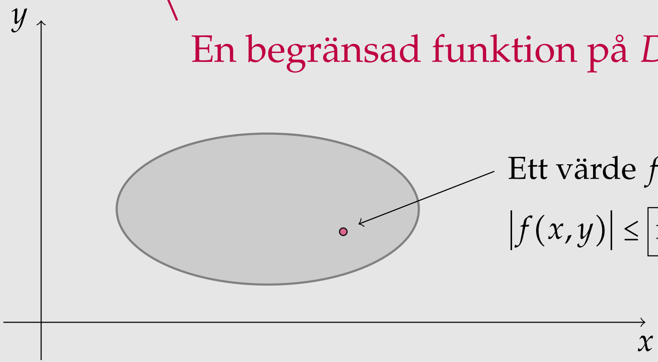
Ett begränsat område i $\mathbf{R}^2$.



Ryms inuti någon cirkel $x^2 + y^2 = R^2$.

$$\iint_D f(x,y)\,dx\,dy$$

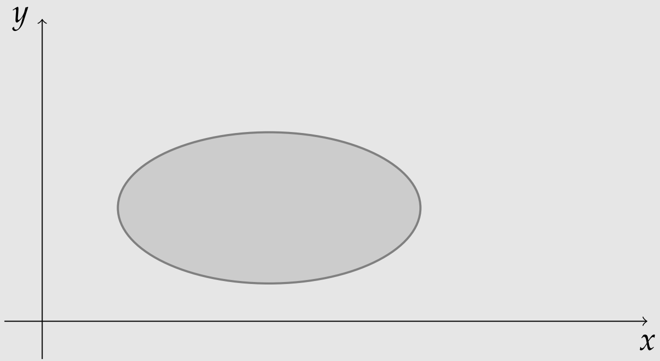
En begränsad funktion på D.



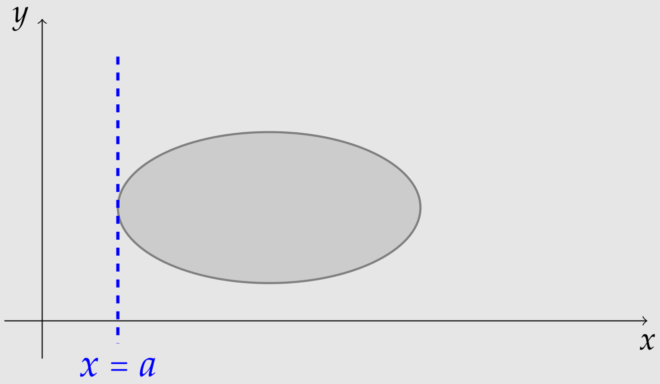
Ett värde $f(x,y)$ i varje punkt $(x,y) \in D$.

$|f(x,y)| \leq$ någon konstant för alla $(x,y) \in D$.

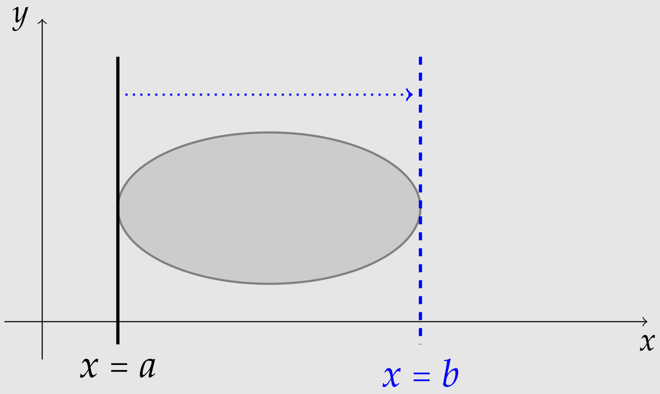
$$\iint_D f(x,y)\,dx\,dy = \int \left(\qquad\qquad\qquad\qquad \right) dx$$



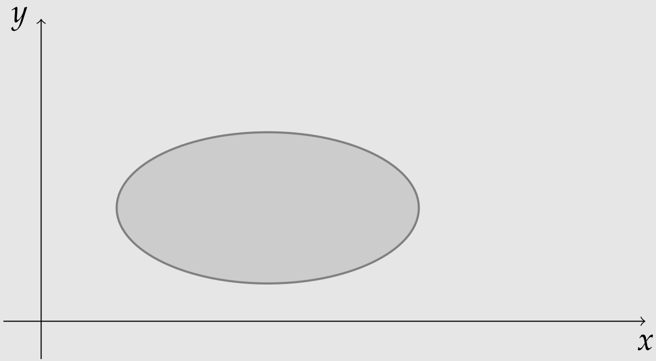
$$\iint_D f(x,y)\,dx\,dy = \int_a \left(\qquad \qquad \qquad \right) dx$$



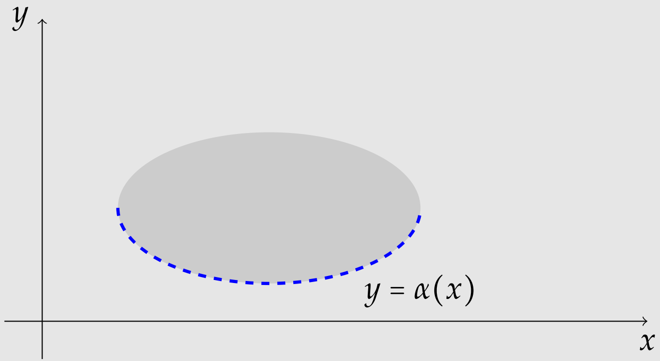
$$\iint_D f(x,y)\,dx\,dy = \int_a^{b} \Bigg(\qquad\qquad\qquad \Bigg)\,dx$$



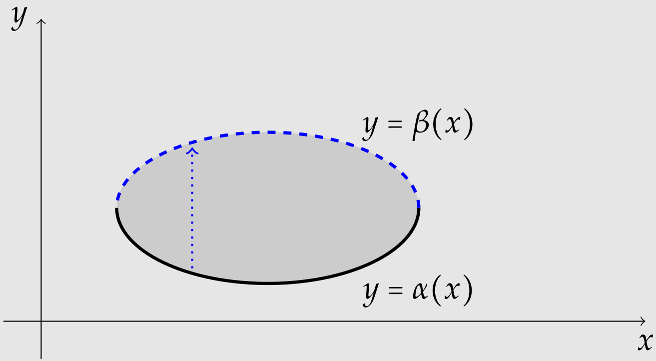
$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int \qquad\qquad\qquad\qquad dy \right) dx$$



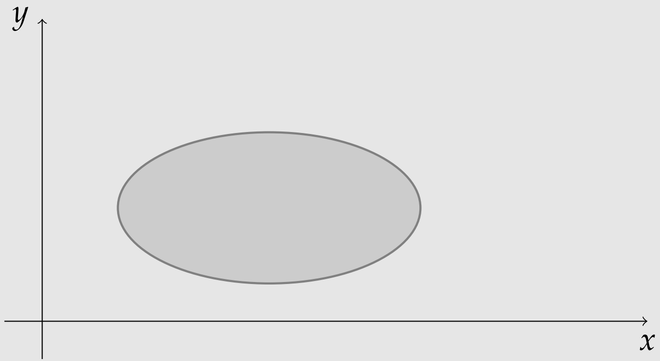
$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)} \qquad\qquad dy \right) dx$$



$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} \qquad\qquad dy \right) dx$$

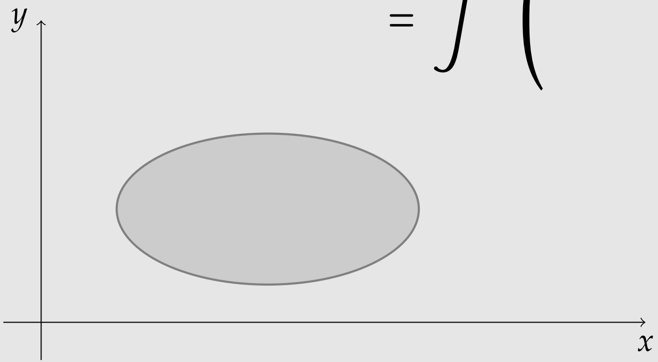


$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} f(x,y)\,dy \right) dx$$



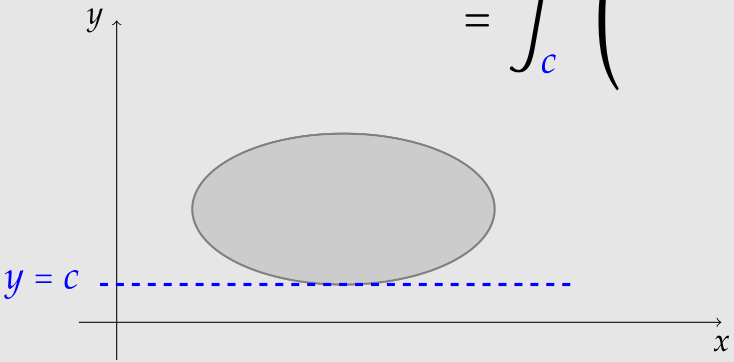
$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} f(x,y)\,dy \right) dx$$

$$= \int \left(\qquad \right) dy$$



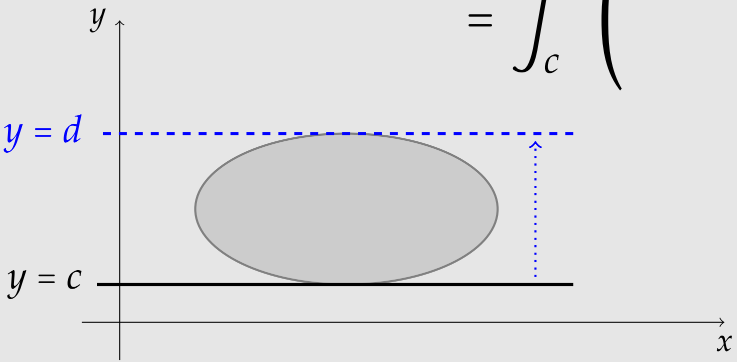
$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} f(x,y)\,dy \right) dx$$

$$= \int_{c} \left(\qquad \qquad \qquad \right) dy$$



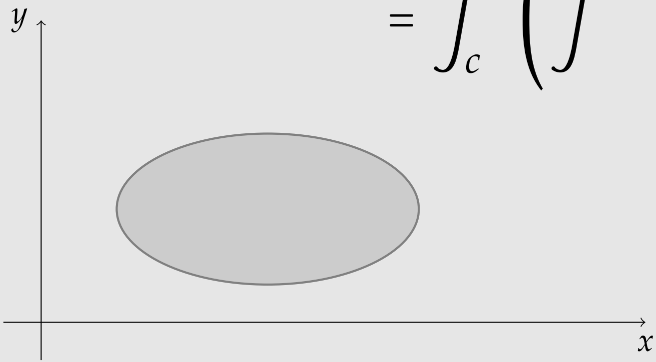
$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} f(x,y)\,dy \right) dx$$

$$= \int_c^d \left(\qquad\qquad\qquad\qquad \right) dy$$



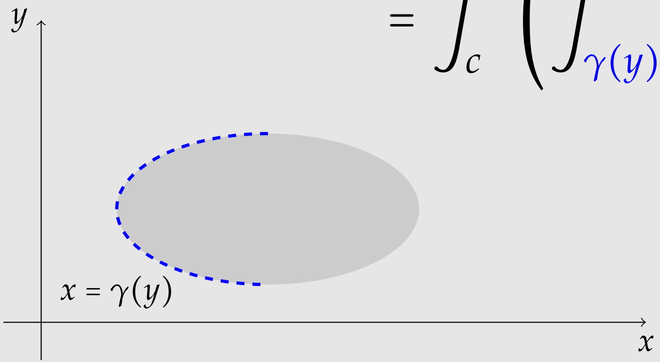
$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} f(x,y)\,dy \right) dx$$

$$= \int_c^d \left(\int \qquad\qquad dx \right) dy$$



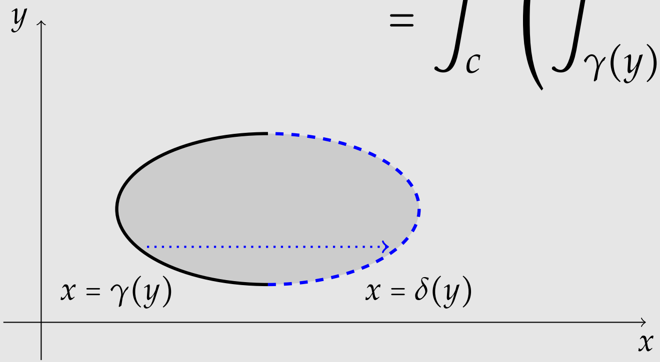
$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} f(x,y)\,dy \right) dx$$

$$= \int_c^d \left(\int_{\gamma(y)} \qquad dx \right) dy$$



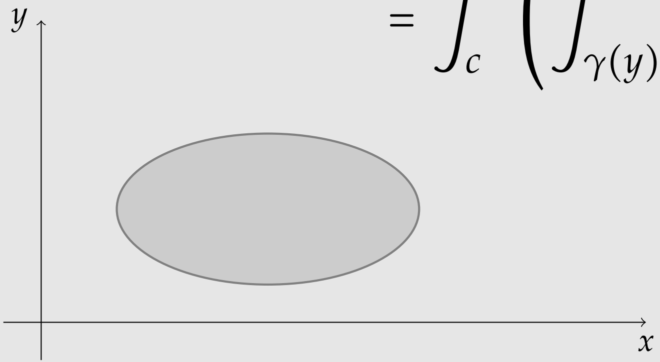
$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} f(x,y)\,dy \right) dx$$

$$= \int_c^d \left(\int_{\gamma(y)}^{\color{blue}{\delta(y)}} \qquad dx \right) dy$$



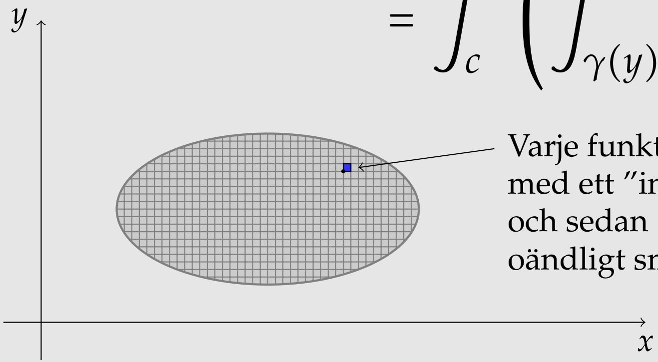
$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} f(x,y)\,dy \right) dx$$

$$= \int_c^d \left(\int_{\gamma(y)}^{\delta(y)} f(x,y)\,dx \right) dy$$



$$\iint_D f(x,y)\,dx\,dy = \int_a^b \left(\int_{\alpha(x)}^{\beta(x)} f(x,y)\,dy \right) dx$$

$$= \int_c^d \left(\int_{\gamma(y)}^{\delta(y)} f(x,y)\,dx \right) dy$$



Varje funktionsvärde $f(x,y)$ multipliceras med ett ”infinitesimalt” areaelement $dA = dx\,dy$, och sedan ”summeras” dessa oändligt många oändligt små termer $f(x,y)\,dA$.