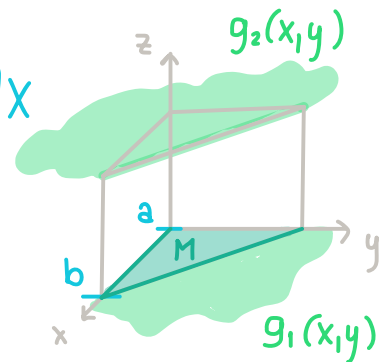


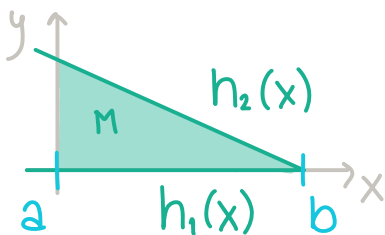
TROJNÉ INTEGRÁLY

- FUBINIOVA VĚTA - trojný integrál na trojité

$$\int_W f(x, y, z) dV = \int_a^b \int_{h_1(x)}^{h_2(x)} \int_{g_1(x, y)}^{g_2(x, y)} f(x, y, z) dz dy dx$$



$z=0$ rovina $xy \rightarrow$ množina M



a, b, \dots čísla \rightarrow konst. meze nakonec

- SFÉRICKE SOUTRADNICE

$$\iiint f(x, y, z) dz dy dx \rightarrow \iiint f(r, \psi, \varphi) \cdot |J| dr d\psi d\varphi$$

$$x = r \cdot \cos\psi \cdot \cos\varphi$$

$$x = a \cdot r \cdot \cos\psi \cdot \cos\varphi$$

$$y = r \cdot \sin\psi \cdot \cos\varphi$$

$$y = b \cdot r \cdot \sin\psi \cdot \cos\varphi$$

$$z = r \cdot \sin\psi$$

$$z = c \cdot r \cdot \sin\psi$$

$$J = r^2 \cdot \cos\psi$$

$$J = a \cdot b \cdot c \cdot r^2 \cdot \cos\psi$$

KOULE

ELIPSOID

r poloměr

ψ úhel s rovinou xy (zenit)

φ úhel v rovině xy (azimut)

$$r > 0$$

$$\psi \in \left(-\frac{\pi}{2}; \frac{\pi}{2}\right)$$

$$\varphi \in (0; 2\pi)$$

