Př. 2. V studijných materiáloch (anglická zbierka) príklad 10.E.10. (str. 688)

Př. 3.

$$f(x,y,z) = \begin{cases} c\cdot(x+y+z) & \text{pro } 0 \le x \le 1,\ 0 \le y \le 2,\ 0 \le z \le 3 \\ 0 & \text{jinak} \end{cases}$$

z definice $\int_{-\infty}^{\infty}\int_{-\infty}^{\infty}\int_{-\infty}^{\infty} f(x,y,z)\,dx\,dy\,dz = 1$

Tedy

$$c\cdot\int_0^3\int_0^2\int_0^1 x+y+z \; dx\,dy\,dz = \int_0^3\int_0^2 \left[\frac{x^2}{2} + yx + zx\right]_0^1 dy\,dz =$$

$$= \int_0^3\int_0^2 \left[\frac{1}{2} + y + z\right] dy\,dz = \int_0^3 \left[\frac{y}{2} + \frac{y^2}{2} + zy\right]_0^2 dz =$$

$$= \int_0^3 1 + 2 + 3z\,dz = \left[3z + z^2\right]_0^3 = 9 + 9 = \underline{\underline{18}}$$

$\boxed{c = \frac{1}{18}}$ $\Rightarrow$ aby $\boxed{\iiint f(x,y,z) \text{ splňovala } 1}$ $\Leftarrow$ $f(x,y,z) = \frac{1}{18}\cdot(x+y+z)$ pro ....

$$P\left(0 \le x \le \frac{1}{2};\ 0 \le y \le \frac{1}{3},\ 0 \le z \le \frac{1}{4}\right) = \frac{1}{18}\int_0^{\frac{1}{4}}\int_0^{\frac{1}{3}}\int_0^{\frac{1}{2}} x + y + z\,dx\,dy\,dz =$$

$$= \ldots\ldots = \underline{\frac{13}{576}\cdot\frac{1}{18}}$$