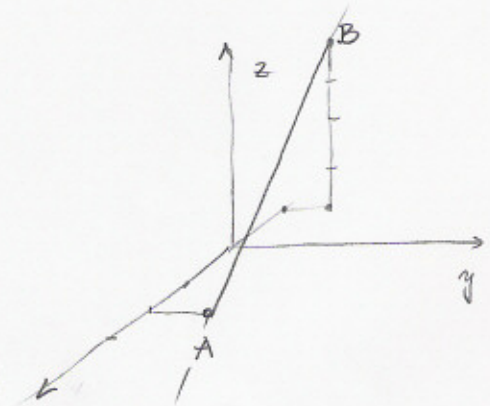
HER

D.N.

IZRAČUNAJTE $\int_K \frac{ds}{x+y+z}$, KJER JE K DALJICA MED $A(2,1,0)$ IN $B(-1,1,4)$.



$$\vec{A} = \overrightarrow{AB} = (-1,1,4) - (2,1,0) = (-3,0,4)$$

$$\vec{p}(t) = (2,1,0) + t(-3,0,4) \quad t \in [0,1]$$

$$= (2-3t, 1, 4t)$$

$$\dot{\vec{p}}(t) = (-3,0,4)$$

$$\| \dot{\vec{p}}(t) \| = \sqrt{(-3)^2 + 0^2 + 4^2} = \sqrt{25} = 5$$

$$\int_K \frac{ds}{x+y+z} = \int_0^1 \frac{5\,dt}{2-3t+1+4t} = 5 \int_0^1 \frac{dt}{3+t} =$$

$$5 \left[\ln|3+t| \right]_0^1 = 5(\ln 4 - \ln 3) = \underline{\underline{5 \ln \tfrac{4}{3}}}$$