

①. Najdite riešenie $u(x,y)$ rovnice

$$(2x - 4y + 3u) \frac{\partial u}{\partial x} + (x - 2y - 3u) \frac{\partial u}{\partial y} = -3(x - 2y),$$

ktore' spl'na podmienku $u(x,0) = x$.

②. Najdite riešenie $u(x,y)$ rovnice

$$x \cdot \frac{\partial u}{\partial x} - y \frac{\partial u}{\partial y} = u^2(x - 3y),$$

ktore' spl'na $u(1,y) = -\frac{1}{y}$.

③. Najdite všeobecný tvar riešenia rovnice

$$\frac{\partial^2 u}{\partial x_1^2} + \frac{\partial^2 u}{\partial x_2^2} + \dots + \frac{\partial^2 u}{\partial x_n^2} = (x_1^2 + \dots + x_n^2)^{2019},$$

ktore' má tvar $u(x_1, \dots, x_n) = f(r)$, kde $r = \sqrt{x_1^2 + \dots + x_n^2}$.

④. Najdite všeobecne' riešenie $u(x,y,z)$ rovnice

$$(x+y+5z) \frac{\partial u}{\partial x} + 4z \frac{\partial u}{\partial y} - (x+y+z) \frac{\partial u}{\partial z} = 0.$$

Pr. 1, 2, 3 - 4 BODY
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