

Diferencēšana.

1. Atrast D_1f , D_2f , D_3f , ja $f(x, y, z) = \sin(xy) + \cos z$.
2. Atrast D_1D_2f , ja $f(x, y) = xe^{xy}$.
3. Atrast D_1f , ja $g(x, y)$ ir diferencējama funkcija,

$$\begin{aligned}f(u, v) &= g(\varphi(u, v), \psi(u, v)), \\ \varphi(u, v) &= uv, \\ \psi(u, v) &= -u + v.\end{aligned}$$

4. Atrast $\text{grad}f(P)$, ja

$$\begin{aligned}f(x, y, z) &= z - e^x \sin y, \\ P &= (\log_e 3, \frac{3\pi}{2}, -3).\end{aligned}$$

5. Atrast $df(2, 1, -1)$, ja $f(x, y, z) = \ln(xy + z)$.
6. Atrast D_1f , D_2f , D_3f , ja $f(x, y, z) = \ln(xy) + e^{y+z}$.
7. Atrast D_1D_2f , ja $f(x, y) = xye^{x+y}$.
8. Atrast D_2f , ja $g(x, y)$ ir diferencējama funkcija,

$$\begin{aligned}f(u, v) &= g(\varphi(u, v), \psi(u, v)), \\ \varphi(u, v) &= uv, \\ \psi(u, v) &= u - v.\end{aligned}$$

9. Atrast $\text{grad}f(P)$, ja

$$\begin{aligned}f(x, y, z) &= x + e^z \cos y, \\ P &= (-1, \frac{\pi}{2}, \ln 2).\end{aligned}$$

10. Atrast $df(\frac{\pi}{3}, \sqrt{\pi}, -1)$, ja $f(x, y, z) = \sin x \cos(y^2) - z$.