Beräkna riktningsderivatan av

$$f(x, y, z) = xy + xe^z$$

i punkten $(2, 1, 0)$ i riktning $(1, 2, 4)$.

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OBS! Normera riktningen:

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$$\nabla f(2, 1, 0) = (2, 2, 2).$$

$$f_{\bar{v}}'(2, 1, 0) = (2, 2, 2) \bullet \frac{1}{\sqrt{21}}(1, 2, 4)$$

Lösning

$$f(x, y, z) = xy + xe^z$$

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$$f'_{\bar{v}}(2, 1, 0) = (2, 2, 2) \bullet \frac{1}{\sqrt{21}}(1, 2, 4) = \frac{2 + 4 + 8}{\sqrt{21}} = \frac{2\sqrt{7}}{\sqrt{3}}.$$