

c) Fkt direction of $D_u f(2,0)$ or
when $D_u f(2,0)$ is orthogonal to ∇f :

$$\Rightarrow \nabla f \cdot n = 0$$

$$n = (-2i + j)$$

$$\begin{aligned} \Rightarrow \nabla f \cdot n &= (5i + 10j) \cdot (-2i + j) \\ &= -10 + 10 = 0 \end{aligned}$$