



■■■■: 11.01.2026 13:30

A horizontal bar composed of two rows of ten dark blue squares each, centered at the bottom of the page.

20–50%;

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— 1 —

the  $\mathbb{R}^n$ -valued function  $\varphi$  defined by  $\varphi(x) = \langle x, \omega \rangle$ . The condition  $\varphi \in C^\infty(\mathbb{R}^n)$  implies that  $\omega \in C^\infty(\mathbb{R}^n)$ . Since  $\omega$  is a  $\mathbb{R}^n$ -valued function, we can write  $\omega = (\omega_1, \omega_2, \dots, \omega_n)$ , where each  $\omega_i$  is a scalar function. The condition  $\omega \in C^\infty(\mathbb{R}^n)$  means that each  $\omega_i$  is a smooth function. Therefore,  $\omega \in C^\infty(\mathbb{R}^n)$ .



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