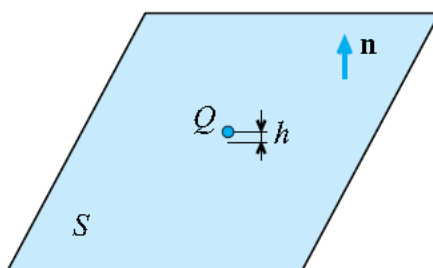


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*Flux of the electric field vector through an infinite surface.* A point charge  $Q$  is situated in free space at a very small height  $h$  ( $h \rightarrow 0$ ) above an imaginary (nonmaterial) infinite flat surface  $S$ , as depicted in Fig.Q1.9. The surface is oriented upward. The flux of the electric field intensity vector due to the charge  $Q$  through  $S$  comes out to be

- (A)  $\Psi_E = Q/(4\pi\epsilon_0)$ .
- (B)  $\Psi_E = Q/(2\epsilon_0)$ .
- (C)  $\Psi_E = -Q/(2\epsilon_0)$ .
- (D)  $\Psi_E = -Q/\epsilon_0$ .
- (E)  $\Psi_E = 0$ .
- (F)  $\Psi_E \rightarrow \infty$ .



**Figure Q1.9** Point charge  $Q$  at a very small height  $h \rightarrow 0$  above an infinite flat nonmaterial surface  $S$ ; for Question 1.12.

*Solution:* (C)

*Answer:* (C)