

A particle, with a mass of 10 g and a charge of $-0.70 \mu\text{C}$, is suspended in equilibrium above the center of a large, horizontal, insulating uniformly charged sheet. What is the surface charge density on the sheet?

$$qE = mg$$

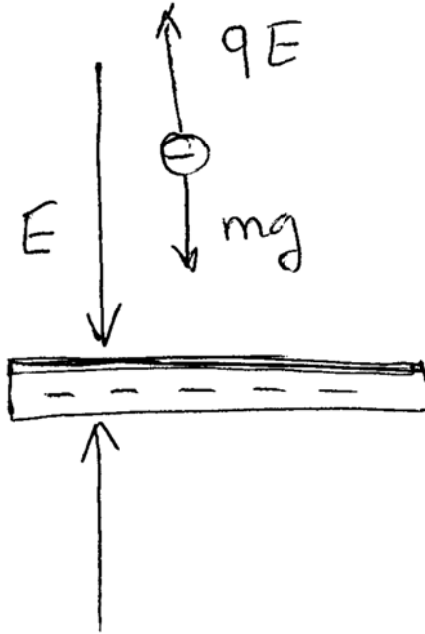
$$E = \frac{mg}{q}$$

$$E = \frac{|G|}{2\epsilon_0}$$

$$\Rightarrow |G| = 2E\epsilon_0$$

$$= 2 \frac{mg}{q} \epsilon_0$$

$$= 2 \frac{10 \times 10^{-3} \times 9.8}{0.7 \times 10^{-3}} = 2.5 \frac{\mu\text{C}}{\text{m}^2}$$

$$\sigma = -2.5 \frac{\mu\text{C}}{\text{m}^2}$$


04 Sep	11 Sep	18 Sep	25 Sep	2 Oct	9 Oct	23 Oct	30 Oct	6 Nov	13 Nov	20 Nov	27 Nov	4 Dec	11 Dec	18 Dec
Solutions of the quizzes can be found on the webpage: http://faculty.kfupm.edu.sa/phys/aljalal/phys102.htm														
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