Physics 102-Rec
Quiz#5-Sect.23
Chapter 22

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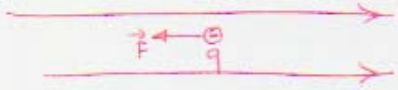
Name: Key Id:

A particle of mass m =1.0 x 10^{-2} g and charge q = – 4.0 μC is moving with a velocity of 20 m/s in the positive x-direction. If the particle enters a uniform electric field of 20 N/C in the positive x-direction, what is

(a) the acceleration of the particle?



The particle will decelerate.

$F = ma = qE$

$a = \frac{qE}{m} = \frac{-4\times10^{-6} \times 20}{1\times10^{-5}} = 8\ m/s$

(b) the particle's speed after 5.0 s?

$v = at = 8 \times 5 = 40\ m/s$