Chap 21: 

Problem 63. Two point charges of 30 nC and -40 nC are held fixed on an *x* axis, at the origin and at *x* = 72 cm, respectively. A particle with a charge of 42 *μ*C is released from rest at *x* = 28 cm. If the initial acceleration of the particle has a magnitude of 100 km/s2, what is the particle's mass?

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| **Problem 42**  | In Fig. [21-38](http://edugen.wiley.com/edugen/courses/crs4957/halliday9118/halliday9088c21/halliday9118/halliday9088c21/halliday9088c21xlinks.xform?id=halliday9088c21-fig-0038), two tiny conducting balls of identical mass *m* and identical charge *q* hang from nonconducting threads of length *L*. Assume that *θ* is so small that tan *θ* can be replaced by its approximate equal, sin *θ* (a) Show that

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| http://edugen.wiley.com/edugen/courses/crs4957/common/art/pixel.gif |
| http://edugen.wiley.com/edugen/courses/crs4957/halliday9118/halliday9088c21/math/math019.gif |  |

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