Quiz 4 Solutions

25. (*a*) Consider the free-body diagram for the block on the surface. There is

no motion in the *y* direction and thus no acceleration in the *y* direction. Write Newton’s second law for both directions, and find the acceleration.



Now use Eq. 2-12c, with an initial velocity of , a final velocity of 0, and a displacement of  to find the coefficient of kinetic friction.



35. (*a*) Find the centripetal acceleration from Eq. 5-1.



 (*b*) The net horizontal force is causing the centripetal motion, and so will be the centripetal force.

 

41. A free-body diagram for the car is shown. Write Newton’s second law for the car in the vertical direction, assuming that up is positive. The normal force is twice the weight.

