Student name: _____

5-minute Quiz #8

Answer these two questions:

1. A tennis ball of mass 60 g is dropped from rest at a height of 1 m and hits the ground a speed of 3.0 m/s. During its fall, how much work is done on the ball by air resistance? *[5 points]*

2. A particle of mass 1 kg, total energy $E = 1.42$ J and initial position $x = 0.4$ m moves along the x-axis with a potential energy $U(x)$ whose dependence on x is shown below. The energy of the particle is indicated by the dashed horizontal line and the initial position of the particle is indicated by the vertical dotted line. **(a)** Which point(s) (A through F) can the particle reach during its motion? *[2 points]* **(b)** Is the particle initially at rest or does it have a nonzero initial velocity? *[1 point]* **(c)** In which point(s) the particle has the highest speed? *[1 point]* **(d)** In which point(s) the particle is at rest? *[1 point]*