PHYS 101H Practice Problems

1. A 72-kg boy and a 48-kg girl, both wearing ice skates face each other at rest on a skating rink. The boy pushes the girl, sending her eastward with a speed of 6.8 m/s. When the impulse is completed, the boy and girl are a distance of 1.4 meters apart. Determine the distance of separation between the boy and the girl 5.0 seconds after the impulse is completed.

2. A physics student hurls a 315-gram ball directly into a 3.54-kg box which is at rest on a table top. The baseball strikes the box with a pre-impact speed of 54.1 m/s. The box is filled with towels to help *absorb the blow* and effectively *catch* the ball. The coefficient of friction between the box and the table is 0.714. Determine the distance which the ball and box slide across the table after the collision.