**Momentum Connection Problems**

1. Two hockey players are skating towards each other on frictionless ice. The first player is 72kg and is skating at 3m/s. The second player is 87kg and is skating at -3.4m/s. They collide at center ice, fall into a tangled pile and slide together until they hit the boards that were 16m away. How long did they slide together?
2. A particular rifle can accelerate a 25g bullet from rest to 350m/s. If a 65kg person was holding the 7kg rifle:
   1. What would the velocity of the person be after firing the rifle if they were standing on a frictionless surface?
   2. How far would the person be pushed if they were on a surface with a coefficient of friction of 0.22?
3. A 6kg block of wood sits on a table with a coefficient of friction of 0.14. A gun is fired and the 35g bullet embeds into the block of wood. The bullet riddled wood slides 2.5m due to the impact. How fast was the bullet going before it collided with the wood?
4. A golf club slices a 150g golf ball (which was sitting at rest) with a net force of 5N for 0.6s. The golf ball flies straight upward. What is the maximum height the ball reaches?

1. 39s 2. a) 0.12m/s b) 3.4×10-3m 3. 450m/s 4. 20m