1. . An athlete of mass 70.0 kg applies a force of 500 N to a 30.0 kg luge, which is initially at rest, over a period of 5.00 s before jumping onto the luge. Assuming there is no friction between the luge and the track on which it runs, what is its velocity after the athlete jumps on? (A) 12.5 m/s (B) 25.0 m/s (C) 35.7 m/s (D) 83.3 m/s (E) 100 m/s