51058, Physics, Mechanics — Kinematics — Dynamics

Question A 65 kg sprinter completes a 100 m race in 9.83 s. Calculate the average kinetic energy of the sprinter.

Solution Average speed is

$$v = \frac{s}{t} = \frac{100}{9.83} \approx 10.17\, m/s$$

Hence, average energy is

$$E = \frac{mv^2}{2} = \frac{65 \cdot 10.17^2}{2} \approx 3363.38\, J$$