

Question 69428 – Physics/Mechanics/Relativity

Ball A rolled in a straight line with speed 5m/s towards bigger ball B lying 20m away. after collision A retraces & reaches starting point with 4m/s. What is the average velocity of ball A during time 0 to 6 sec.

Answer:

The average velocity can be expressed as a relation between the whole way and the total time required for that way:

$$v_{av} = \frac{S_{tot}}{t_{tot}}$$

The total time is 6 sec and the total way must be calculated:

$$t_{AB} = \frac{S_{AB}}{v_{AB}} = \frac{20m}{5m/s} = 4sec$$

Thus, the rest 2 sec the ball will travel from B to some point C in between B and A:

$$S_{BC} = t_{BC} \cdot v_{BC} = 2sec \cdot 4m/s = 8m$$

The total way for the first 6 sec will be 28 meters:

$$v_{av} = \frac{S_{tot}}{t_{tot}} = \frac{28m}{6sec} = 4.67 \text{ m/s}$$

Answer provided by AssignmentExpert.com