

The answer is (b)

Formula to calculate the momentum of the two balls is,

$$P_{ri} + P_{bi} = P_{rf} + P_{bg}$$

Here, P_{ri} is the initial momentum of the tennis ball. P_{bi} is the initial momentum of the bowling ball. P_{rf} is the final momentum of the tennis ball. P_{bg} is the final momentum of the bowling ball. Since, the bowling ball is stationary. Hence, the initial momentum will be zero.

The table tennis ball bounces back from the much more massive bowling ball with approximately the same speed. Hence, the momentum of the tennis ball is,

$$P_{rf} = -P_{ri}$$

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$$P_{ri} = -P_{ri} + P_{bg} \quad P_{bg} = 2P_{ri}$$

Thus, the bowling ball has larger magnitude of the momentum than tennis ball

Thank you

Student ID : 201923250

Name : Kobilov Ilkhomjon