

Answer on Question 64607, Physics, Other

Question:

Two objects of masses 2 kg and 6 kg have same momentum. Find the ratio of their velocities.

Solution:

Let the first object has the mass $m_1 = 2\text{ kg}$ and the velocity v_1 , and the second one has the mass $m_2 = 6\text{ kg}$ and the velocity v_2 . Since both objects have the same momentum, we get:

$$p_1 = p_2,$$

$$m_1 v_1 = m_2 v_2.$$

From the last formula we can find the ratio of their velocities:

$$\frac{v_1}{v_2} = \frac{m_2}{m_1} = \frac{6\text{ kg}}{2\text{ kg}} = 3.$$

Answer:

$$v_1/v_2 = 3.$$

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