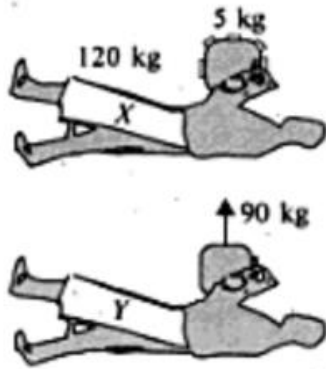


### Answer on Question #55749-Physics-Classical Mechanics

Astronauts mr. x and mr. y float in zero gravity space with no velocity. Mr. y throws a mass of 5 kg towards x with speed 2 ms. if mr. x catches it the change in velocity of x and y are

#### Solution



The change in momentum is

$$\Delta P = 5 \text{ kg} \cdot 2 \frac{\text{m}}{\text{s}} = 10 \frac{\text{kgm}}{\text{s}}.$$

The change in velocity of x is

$$v_x = \frac{\Delta P}{(120 + 5) \text{ kg}} = \frac{10 \frac{\text{kgm}}{\text{s}}}{(120 + 5) \text{ kg}} = 0.08 \frac{\text{m}}{\text{s}}$$

The change in velocity of y is

$$v_y = \frac{\Delta P}{(90 - 5) \text{ kg}} = \frac{10 \frac{\text{kgm}}{\text{s}}}{(90 - 5) \text{ kg}} = 0.12 \frac{\text{m}}{\text{s}}$$