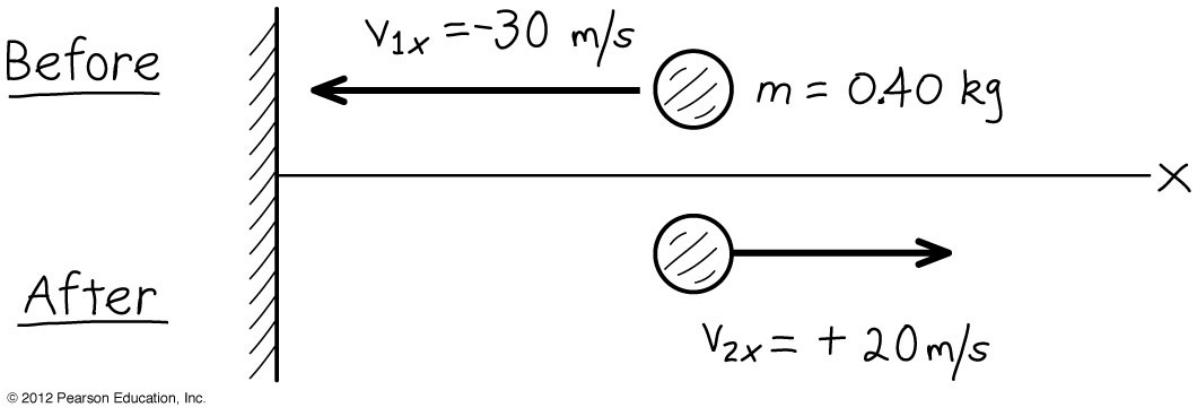
Any problems you'd like me to do?
(Including past quiz questions)



A 0.40 kg ball is initially moving to the left at 30 m/s. After hitting the wall, the ball is moving to the right at 20 m/s. What is the impulse of the net force on the ball during its collision with the wall?

A. 20 kg • m/s to the right

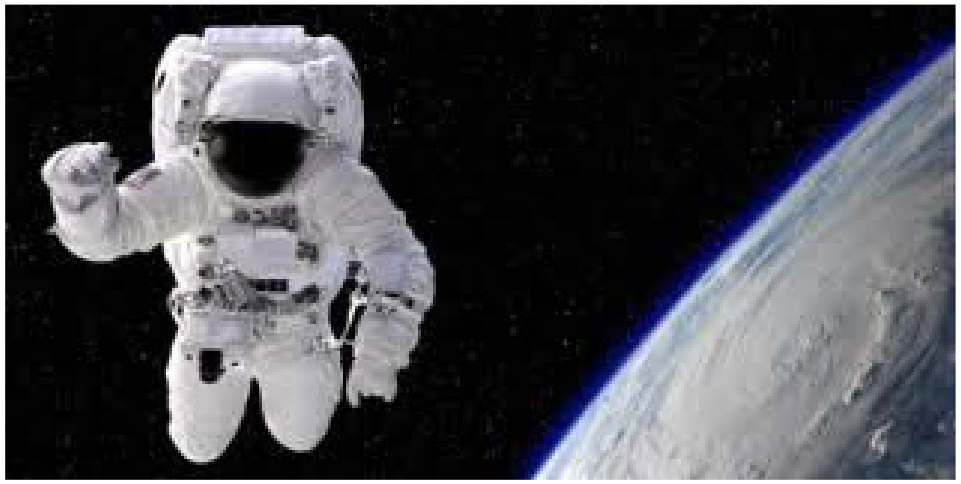
B. 20 kg • m/s to the left

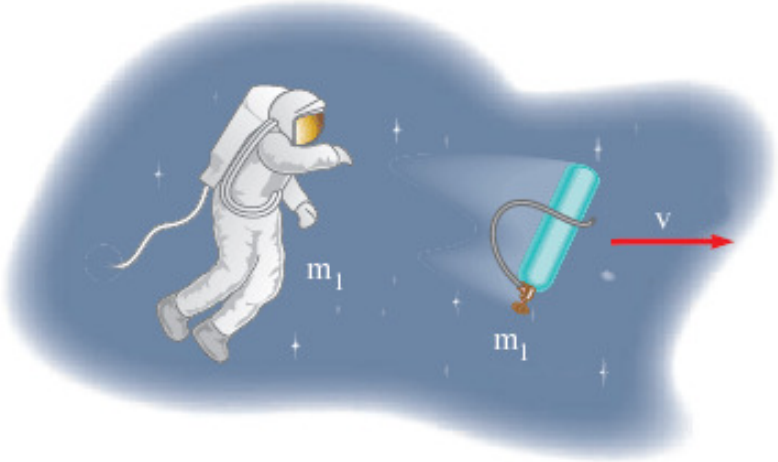
C. 4.0 kg • m/s to the right

D. 4.0 kg • m/s to the left

E. none of the above

Q70





An astronaut in her space suit has a total mass of $m_1 = 87$ kg, including her oxygen tank. Her tether line loses its attachment to her spacecraft and she is too far to grab on! Initially at rest with respect to her spacecraft, she throws her oxygen tank of mass $m_2 = 12.0$-kg away from her spacecraft with a speed $v = 8.00$ m/s to propel herself back toward the spacecraft.

Determine the maximum distance she can be from the craft and still return within 2.00 min (the amount of time the air in her helmet remains breathable).

How much would hitting a zombie slow you down?

ZOMBIE

THERE ARE 2 KINDS OF PEOPLE IN THE WORLD
THOSE WHO HAVE A PLAN FOR WHEN
ZOMBIES TAKE OVER THE EARTH AND THOSE WHO DONT
WE CALL THOSE LAST PEOPLE DINNER

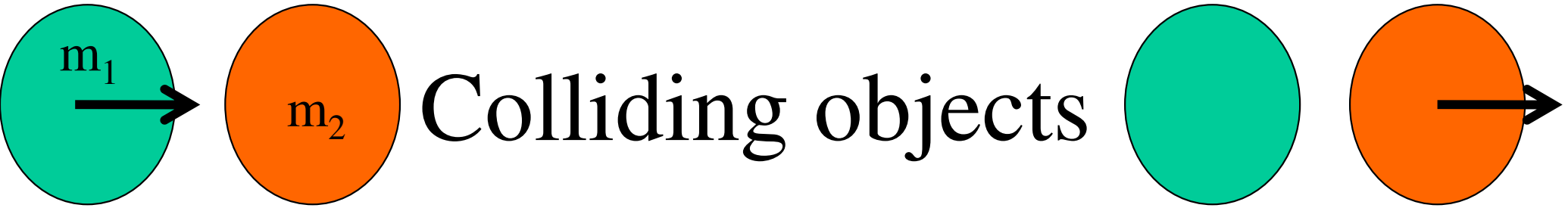
Car Accident Example

An eastward car strikes a northward car traveling at an intersection, and the two move together as a unit. A property owner on the southeast corner of the intersection claims that his fence was torn down in the collision. Should he be awarded damages by the insurance company?

A. Yes, seems possible

B. No, it's impossible

Let the eastward car have a mass of 1250 kg and a speed of 16 m/s and the northward car a mass of 1100 kg and a speed of 21 m/s. Find the velocity after the collision.



Colliding objects

initial $m_2=2m_1$ final

- Let $m_2=2m_1$, so m_2 is twice as massive.
- Let's say you hit ball 1 with $v_{1i}=10$m/s into stationary ball 2, $v_{2i}= 0$ m/s.
- Let's say that after the collision, ball 1 is stationary. (not always the case)
- What is the final velocity of ball 2?

A) 5 m/s

B) 10 m/s

C) 20 m/s

D) -5 m/s

E) -20 m/s

Q77