

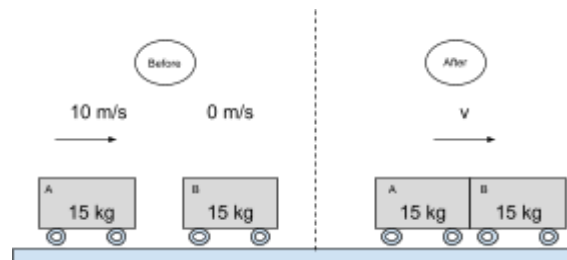
Our Dynamic Universe

Momentum & Collisions

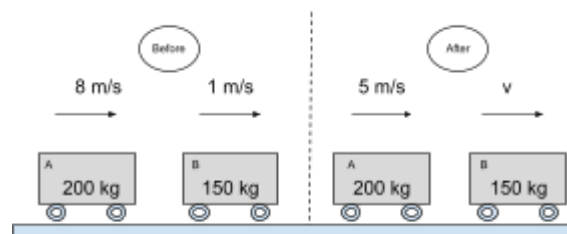


- 1) Using conservation of momentum determine the speed of the two trolleys after the collision.

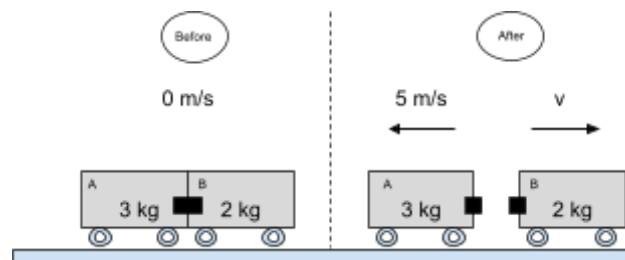
a)



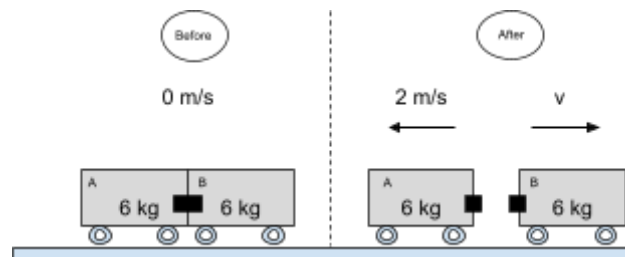
b)



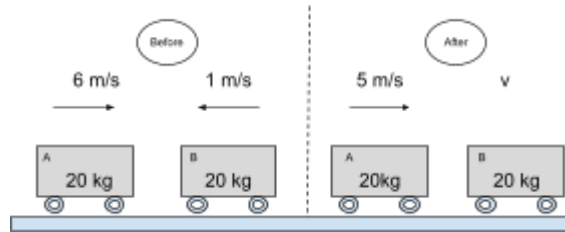
c)



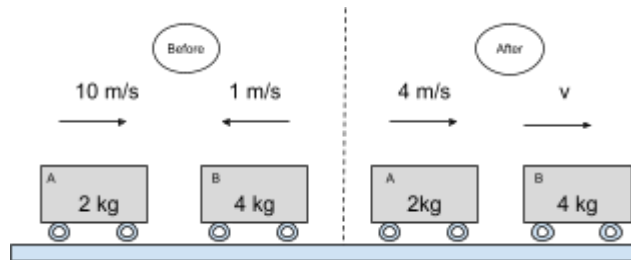
d)



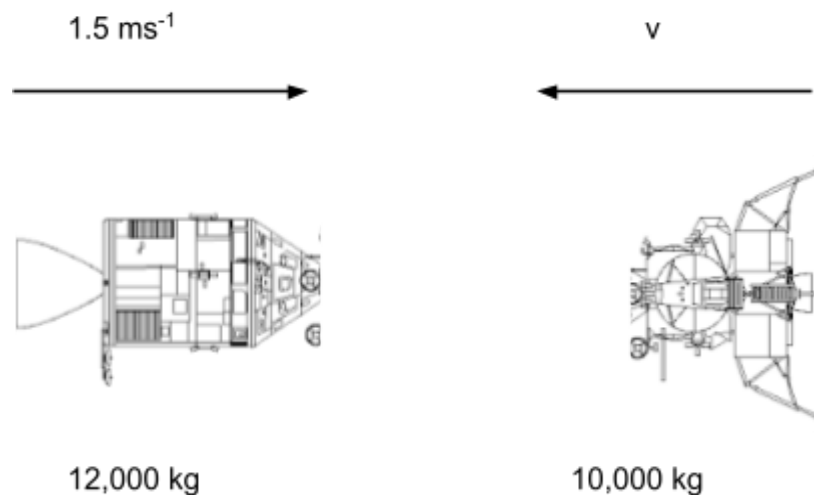
e)



f)

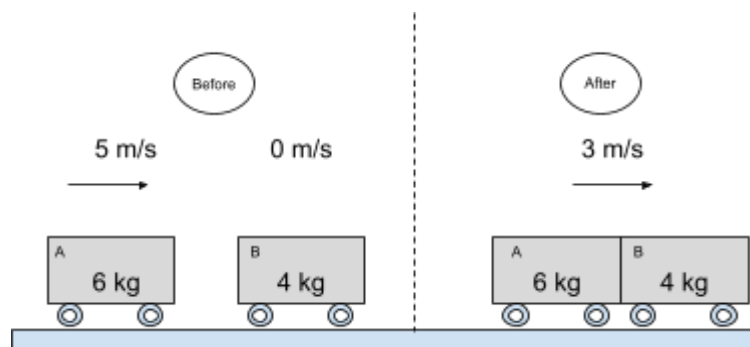


- 2) During the Apollo Moon missions in the 1970s the lunar module on the left and the command module on the right approached each other as shown.

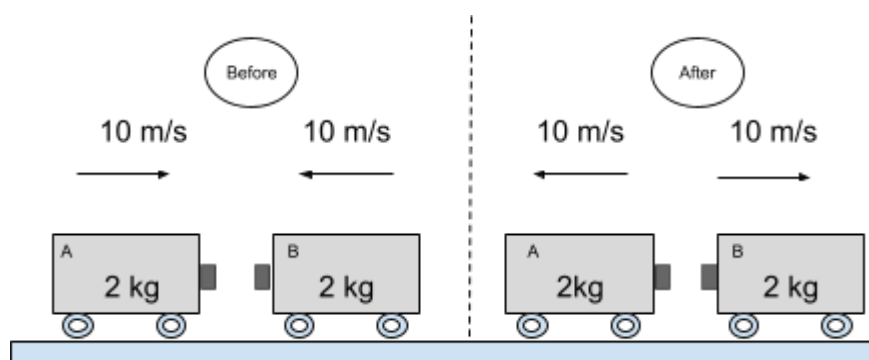


- Determine the speed of the lunar module so that after they join together (dock) the combined speed will be zero.
- Find the change of momentum of the command module.
- Find the change of momentum of the lunar module.
- Compare both changes of momentum.

- 3) Two trolleys collide and stick together as shown in the diagram below.



- Show that momentum is conserved.
 - Calculate the total kinetic energy before and after the collision. State whether the collision is elastic or inelastic.
- 4) Two trolleys with magnets attached are travelling in the opposite direction collide and are repelled apart as shown in the diagram below.



- Show that momentum is conserved in the collision.
- Determine if the total kinetic energy is conserved in the collision
- State the type of collision that has occurred.