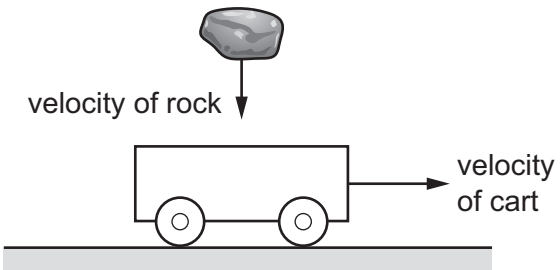
13 An empty cart is moving along a horizontal track at a constant velocity.

Resistive forces acting on the cart are negligible.

A heavy rock is dropped vertically into the cart.



The cart continues to move horizontally with the rock inside.

How does the momentum and kinetic energy of the cart with the rock inside compare with the momentum and kinetic energy of the empty cart?

A The cart with the rock inside has a smaller momentum and a smaller kinetic energy.

B The cart with the rock inside has a smaller momentum and the same kinetic energy.

C The cart with the rock inside has the same momentum and a smaller kinetic energy.

D The cart with the rock inside has the same momentum and the same kinetic energy.