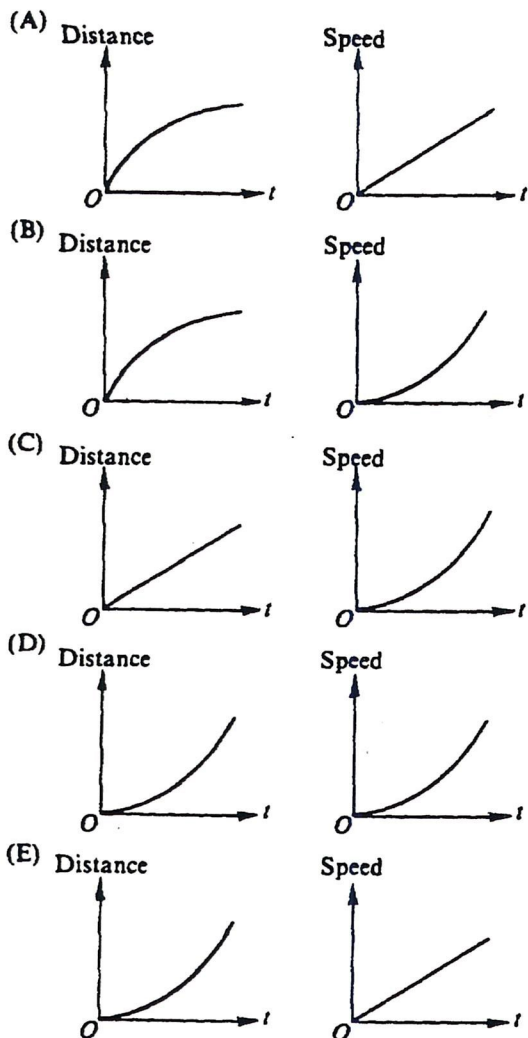
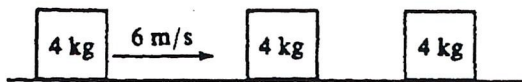


1. Which of the following pairs of graphs shows the distance traveled *versus* time and the speed *versus* time for an object uniformly accelerated from rest at time $t = 0$?



Questions 2-3



A 4-kilogram mass has a speed of 6 meters per second on a horizontal frictionless surface, as shown above. The mass collides head-on and elastically with an identical 4-kilogram mass initially at rest. The second 4-kilogram mass then collides head-on and sticks to a third 4-kilogram mass initially at rest.

2. The final speed of the first 4-kilogram mass is
- (A) 0 m/s
(B) 2 m/s
(C) 3 m/s
(D) 4 m/s
(E) 6 m/s
3. The final speed of the two 4-kilogram masses that stick together is
- (A) 0 m/s
(B) 2 m/s
(C) 3 m/s
(D) 4 m/s
(E) 6 m/s
-
4. A particle of mass m moves along a straight path with a speed v defined by the function $v = bt^2 + c$, where b and c are constants and t is time. What is the magnitude F of the net force on the particle at time $t = t_1$?
- (A) $bt_1^2 + c$
(B) $3mbt_1 + 2c$
(C) mbt_1
(D) $mbt_1 + c$
(E) $2mbt_1$