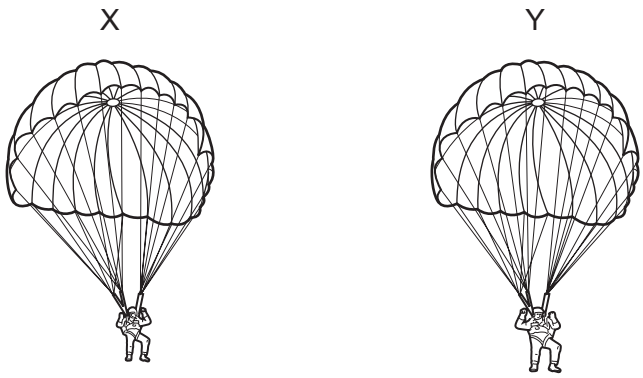
9 The diagram shows two parachutists, X and Y, moving vertically downwards.



The total mass of parachutist Y and his parachute is twice the total mass of parachutist X and his parachute. At this moment, the air resistance on parachute Y is twice the air resistance on parachute X. Neither parachutist has reached his constant (terminal) velocity.

Which statement describes the acceleration of Y compared with the acceleration of X?

A The acceleration of Y is half the acceleration of X.

B The acceleration of Y is the same as the acceleration of X.

C The acceleration of Y is more than the acceleration of X, but less than twice the value.

D The acceleration of Y is twice the acceleration of X.

10 The table shows four different collisions between two blocks, each of mass 0.50 kg.

Which collision is perfectly elastic?

	before collision	after collision
A	$4.0\,m\,s^{-1} \rightarrow$ 0.50 kg $0.0\,m\,s^{-1}$ 0.50 kg	$2.0\,m\,s^{-1} \rightarrow$ 0.50 kg | 0.50 kg
B	$2.0\,m\,s^{-1} \rightarrow$ 0.50 kg $\leftarrow 2.0\,m\,s^{-1}$ 0.50 kg	$0.0\,m\,s^{-1}$ 0.50 kg | 0.50 kg
C	$2.0\,m\,s^{-1} \rightarrow$ 0.50 kg $\leftarrow 1.0\,m\,s^{-1}$ 0.50 kg	$\leftarrow 2.0\,m\,s^{-1}$ 0.50 kg $3.0\,m\,s^{-1} \rightarrow$ 0.50 kg
D	$4.0\,m\,s^{-1} \rightarrow$ 0.50 kg $1.0\,m\,s^{-1} \rightarrow$ 0.50 kg	$1.0\,m\,s^{-1} \rightarrow$ 0.50 kg $4.0\,m\,s^{-1} \rightarrow$ 0.50 kg