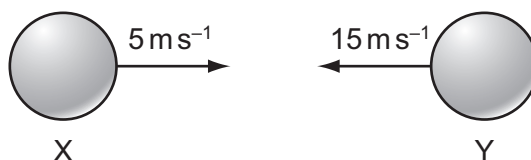**11** A moving object strikes a stationary object. The collision is inelastic. The objects move off together.

Which row shows the possible values of total momentum and total kinetic energy for the system before and after the collision?

	total momentum before collision /kg m s^{-1}	total momentum after collision /kg m s^{-1}	total kinetic energy before collision /J	total kinetic energy after collision /J
A	6	2	90	30
B	6	6	30	90
C	6	6	90	30
D	6	6	90	90

12 Two balls X and Y are moving towards each other with speeds of $5\,\text{m s}^{-1}$ and $15\,\text{m s}^{-1}$ respectively.

They make a perfectly elastic head-on collision and ball Y moves to the right with a speed of $7\,\text{m s}^{-1}$.

What is the speed and direction of ball X after the collision?

A $3\,\text{m s}^{-1}$ to the left

B $13\,\text{m s}^{-1}$ to the left

C $3\,\text{m s}^{-1}$ to the right

D $13\,\text{m s}^{-1}$ to the right