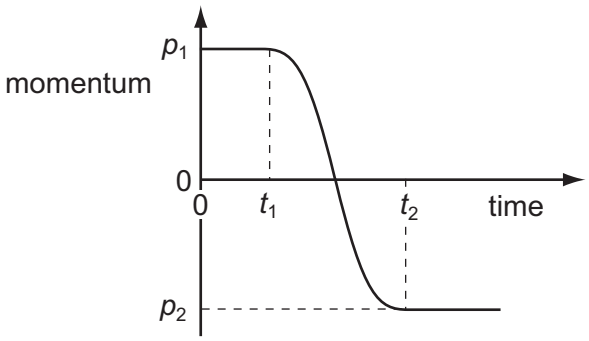
**10** The graph shows the variation with time of the momentum of a ball as it is kicked in a straight line.

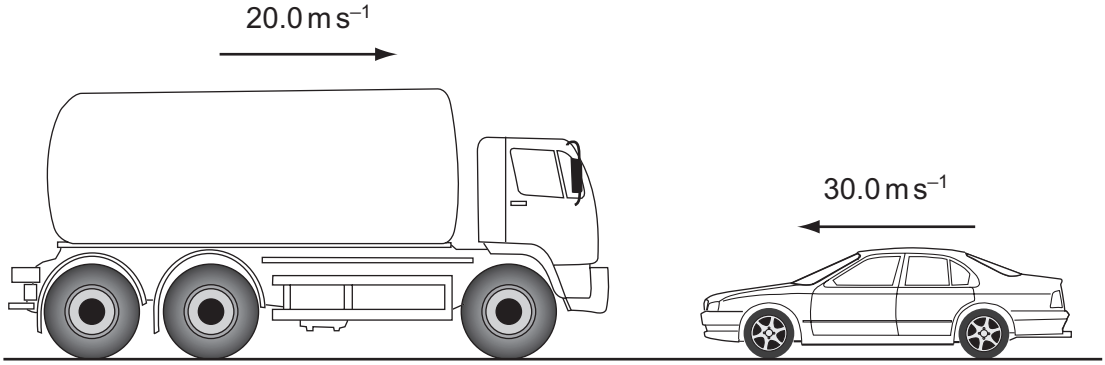



Initially, the momentum is $p_1$ at time $t_1$. At time $t_2$ the momentum is $p_2$.

What is the magnitude of the average force acting on the ball between times $t_1$ and $t_2$?

**A** $\frac{p_1 - p_2}{t_2}$ **B** $\frac{p_1 - p_2}{t_2 - t_1}$ **C** $\frac{p_1 + p_2}{t_2}$ **D** $\frac{p_1 + p_2}{t_2 - t_1}$

**11** A lorry of mass 20 000 kg is travelling at 20.0 m s$^{-1}$. A car of mass 900 kg is travelling at 30.0 m s$^{-1}$ towards the lorry.




What is the magnitude of the total momentum?

**A** 209 kN s **B** 373 kN s **C** 427 kN s **D** 1045 kN s