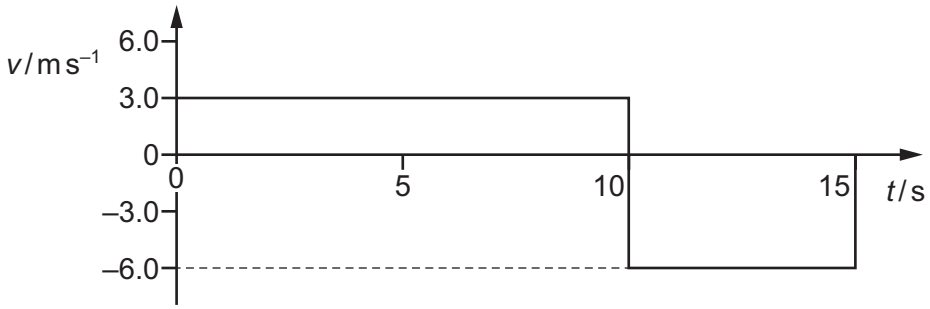
6 A radio-controlled toy car travels along a straight line for a time of 15 s.

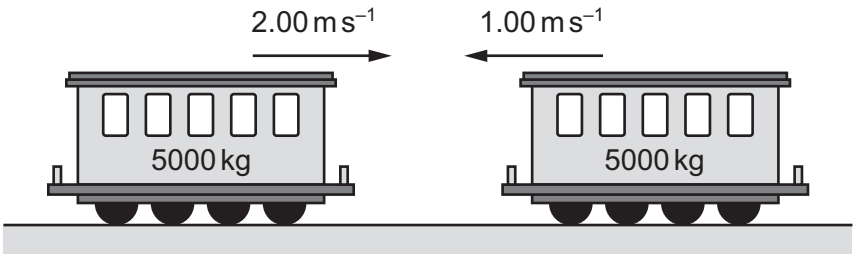
The variation with time t of the velocity v of the car is shown below.



What is the average velocity of the toy car for the journey shown by the graph?

A $-1.5\,m\,s^{-1}$ **B** $0.0\,m\,s^{-1}$ **C** $4.0\,m\,s^{-1}$ **D** $4.5\,m\,s^{-1}$

7 Two train carriages each of mass 5000 kg roll toward one another on a level track. One is travelling at $2.00\,m\,s^{-1}$ and the other at $1.00\,m\,s^{-1}$, as shown.



They collide and join together.

What is the kinetic energy lost during the collision?

A 1250 J **B** 7500 J **C** 11 250 J **D** 12 500 J

Space for working