QUES 3 *A particle is moving along x-axis. Its X-coordinate varies with time as,*

$$X = 2t^2 + 4t - 6$$

Here, X is in metres and t in seconds. Find average velocity between the time interval $t = 0$ to $t = 2\,s$.

Solution In 1-D motion, average velocity can be written as

$$v_{av} = \frac{\Delta s}{\Delta t} = \frac{X_f - X_i}{\Delta t} = \frac{X_{2\,\text{sec}} - X_{0\,\text{sec}}}{2-0}$$

$$= \frac{[2(2)^2 + 4(2) - 6] - [2(0)^2 + 4(0) - 6]}{2}$$

$$= 8\ \text{m/s}$$ **Ans.**