$0.3 = 0 - 2a = -2a$

or $a = -0.3/2 = -0.15\,ms^{-2}$

From (i), $u = 1 - a = 1 + 0.15$

$u = 1.15\,ms^{-1}$

For the velocity of body at the end of 7th second, we have

$u = 1.15\,ms^{-1}; a = -0.15\,ms^{-2}$, v = ?, t = 7s

As, v = u + at

$\therefore$ v = 1.15 + (–0.15) x 7

v = 0.1 m/s

Example 7 A body travels a distance of 20 m in the 7th second and 24 m in 9th second. How much distance shall it travel in the 15th second?

Solution. Here, s_7 = 20 m ; s_9 = 24 m, s_{15} = ?

Let u and a be the initial velocity and uniform acceleration of the body.

We know that, $s_n = u + \frac{a}{2}(2n-1)$

$\therefore$ $s_7 = u + \frac{a}{2}(2\times 7 - 1)$

or $20 = u + \frac{13a}{2}$ .... (i)

and $s_9 + u + \frac{a}{2}(2\times 9 - 1)$

or 24 = u + $\frac{17}{2}$ a ..... (ii)

Subtracting (ii) form (i), we get

4 = 2a

or a = 2 ms^{-2}

Putting this value in (i), we get

$20 = u + \frac{13}{2}\times 2$ or 20 = u + 13

or u = 20 – 13 = 7 ms^{-1}

Hence, s_{15} = $u + \frac{a}{2}$ (2 × 15 – 1) = 7 + $\frac{2}{2}$ × 29

s_{15} = 36 m **Ans.**