

find the total displacement of a body in 8 s starting from rest with an acceleration of 20cm/s²

Displacement in uniformly accelerated motion equals:

$$s = ut + \frac{at^2}{2}$$

s = displacement

u = initial velocity

a = uniform acceleration

t = time

In our case body was starting from rest, therefore $u = 0$:

$$s = \frac{at^2}{2} = 20 \frac{\text{cm}}{\text{s}^2} \frac{(8 \text{ s})^2}{2} = 640 \text{ cm} = 6.4 \text{ m}$$

Answer: 6.4 m