> A parachutist drops from a height of 3.1×10^3 m and falls freely for 10 s. She then opens her parachute, and for the next 20 s slows down uniformly at 4.5 m/s^2. After that, she falls the rest of the distance to the ground at a uniform velocity.

How long is she in the air?

3. **Balloon**

$v = 2.03$ m/s [up]

$\Delta d_B = ?$

$\Delta t = ?$

$\Delta d_B = v\Delta t$

$= 2.03\Delta t$

Camera

$v_i = ?$

$a = 9.8$ m/s^2 [down]

$v_f = 0$

$\Delta d_c = ?$

$v_f^2 = v_i^2 + 2a\Delta d$

$0^2 = v_i^2 + 2(-9.8)\Delta d_c$

$\therefore \Delta d_c = v_f\Delta t - \frac{1}{2}a(\Delta t)^2$