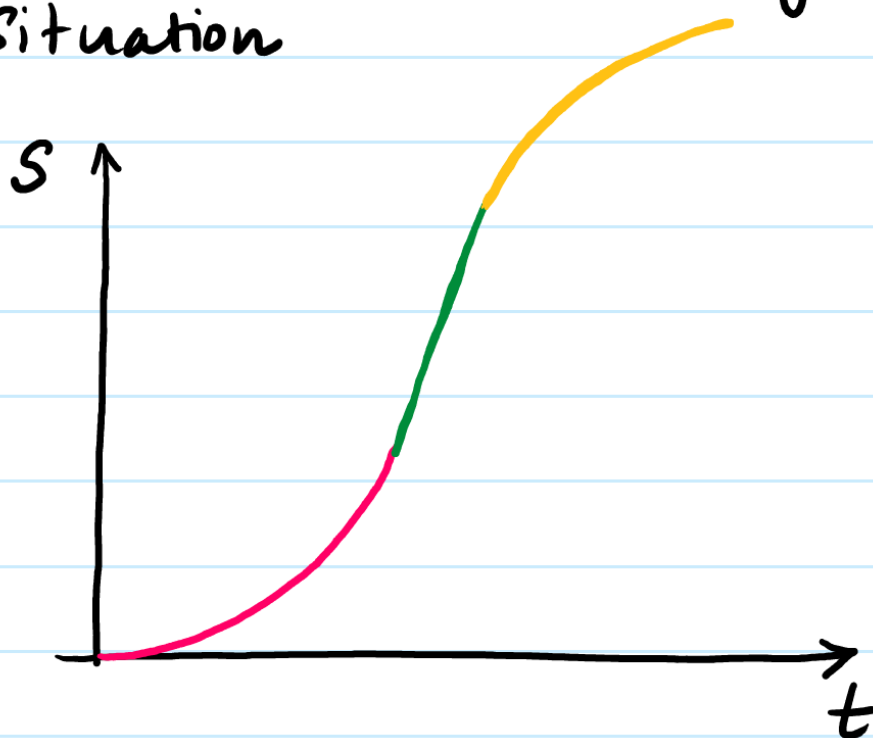
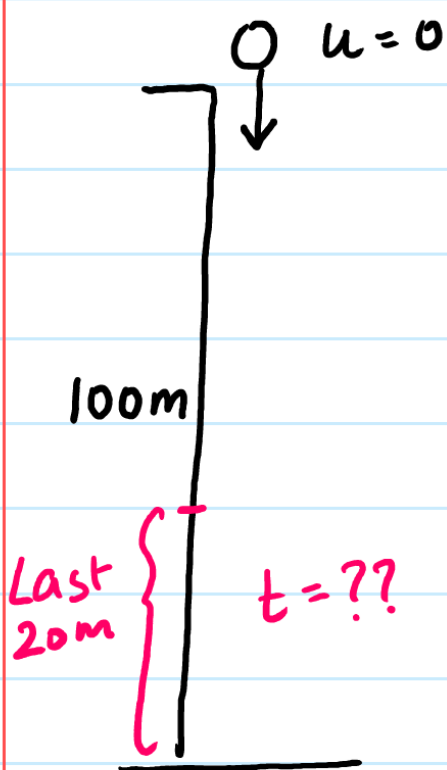


Sketch displ - time graph for above situation



eg: application $s = ut + \frac{1}{2}at^2$.

A ball is released from rest through a height of 100m. Calculate the time taken for the ball to fall for the last 20m?



Let us calculate the time of total journey

$s = 100\text{m}$
 $u = 0$
 $a = 9.81\text{m/s}^2$
 $t = ??$
 $s = ut + \frac{1}{2}at^2$

$s = \frac{1}{2}at^2$

$100 = \frac{1}{2}(9.81)t^2$

$t = 4.51\text{s}$

Let us calculate the time to travel the first 80m.

$s = 80$
 $u = 0$
 $a = 9.81$
 $t = ??$

Last 20m
 $= 4.51 - 4.04$
 $= 0.47\text{s}$

$s = ut + \frac{1}{2}at^2$

$80 = 0 + \frac{1}{2}(9.81)t^2$

$t = 4.04\text{s}$