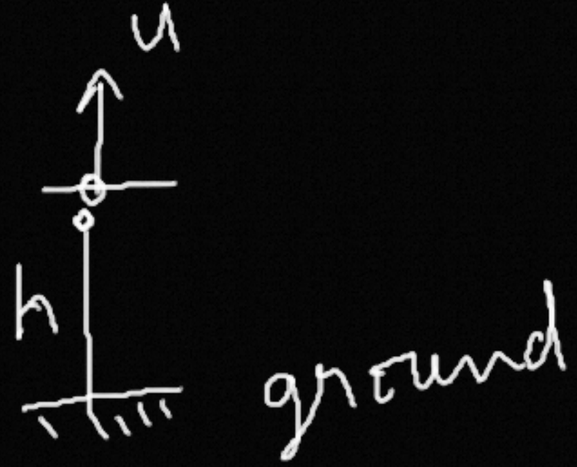
Negative value of time

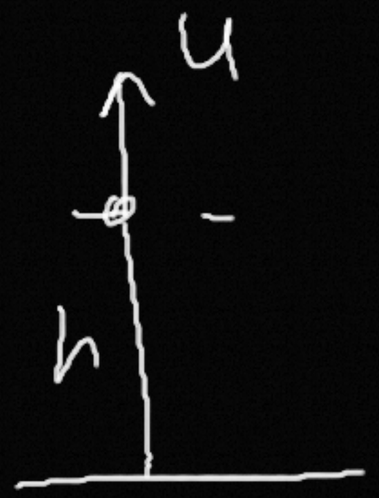
we sometimes get two values of time in a question, one positive and another negative we ignore "negative" value thinking that time can't be negative. But it can be.

Example:



we project a body from the top of a tower upwards. find the time when it reaches ground.

Let us take point of Projection as origin & use vector method



$y = -h, \quad a = -g$

$$y = ut + \frac{1}{2}(a)t^2$$

$$-h = ut - \frac{1}{2}gt^2$$

$$-h = ut - \frac{1}{2}gt^2$$

$$-2h = 2ut - gt^2$$

$$gt^2 - 2ut - 2h = 0$$

Quadratic Equation gives two values of t. say t_1 & t_2.

Product of roots $t_1 \times t_2 = -\frac{2h}{g}$.

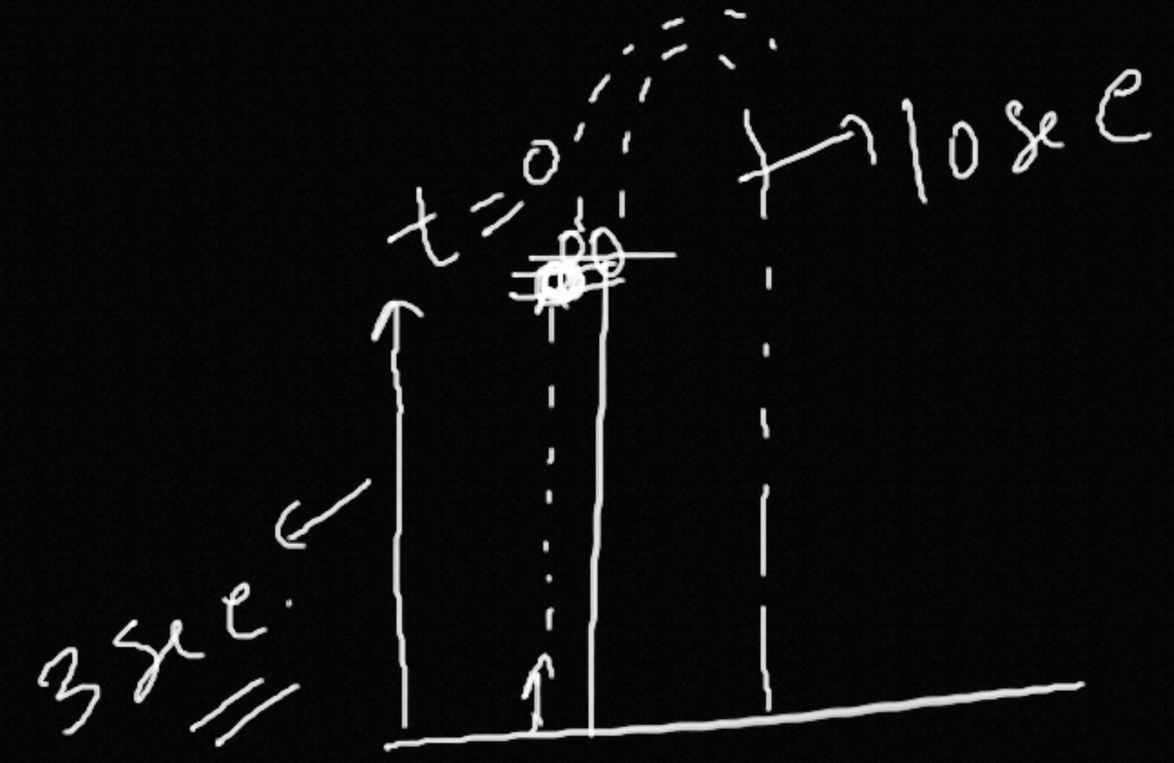
h is the numerical value so

$t_1 \times t_2 \Rightarrow$ negative

one of the values of time is negative.

Say $t_1 = 10$ sec & $t_2 = -3$ sec.

we took $t = 0$ at the instant when body was projected. Hence 10 sec after the projection body reaches ground & 3 sec earlier it could be on ground.



$\Rightarrow$

It's as simple as that, you take this instant (while reading this line as $t=0$)

Then when did you read the Previous Page → in negative time.

That's it.