

Displacement

/////







Average velocity and Instantaneous Velocity

$$\Delta ts \rightarrow change of displacement \Delta sn \rightarrow \Delta s = s_2 - s_1$$

$$1s \rightarrow \Delta s \\ \Delta t \\ \Delta t \\ s \\ extrumely snall \\ \Delta t = 0.0000 - \dots 1$$

$$1nstantaneous, V = \Delta s \\ \Delta t = d \\ velocity \\ velocity \\ w.rz.t thme \\ w.rz.t thme \\ = the note of change \\ = dt \\ w.rz.t \\ = dt \\ = dt \\ dn \\ = dt \\ w.rz.t \\$$









Chapter 03 : Dynamics





Problem A body travels 30m in the first two seconds and 120m in the next three seconds. What will be the velocity at the end of seventh second from the start ? t= 35 first two seconds, _ 30m_ $S_1 = U t_1 + \frac{1}{2} a t_1$ 4 \mathbf{O} \mathcal{O} 0 => 30 = UX2 + + xax(2) total distance = 5, 452 = 150m =30 = 2u + 2a (i) finst Five seconds, fotal time = t, tt2 = 55 $(G_{1}+S_{2}) = UX(t_{1}+t_{2}) + \frac{1}{2}XaX(t_{1}+t_{2})^{2}$ \$ 150 = UX5 + + Xax (5)~ \Rightarrow 5u + $\frac{25}{2}$ a = 15om $-t_{i}$ Physics 1st Paper ্র হদ্বাম Chapter 03 : Dynamics $u = 5ms^{-1}$, $a = 10ms^{-2}$! v = u + at = 5 + 10x7=75 ms' (Answer)

Falling Bodies

1st Formula :All free falling objects initially at rest dropped from the same height and same time will cover the same distance .



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Falling Bodies

2nd Formula :The velocity of a free falling object initially at rest will be proportional to the elapsed time.



 $\sim\sim\sim$

~ t

 $t \neq \sqrt{4}$ $t \neq \sqrt{4}$

Falling Bodies

3rd Formula :An initially stationary object which is allowed to fall freely under gravity falls a distance proportional to the square of the elapsed time. . $\overbrace{} \mathcal{M} \propto t$

A hA t 2 times h 4 times t 3 times h 9 times



a when w **Falling Bodies** 1=utat $fg=9.8ms^{-2}$ $S = \left(\frac{u+v}{2}\right)t$ $S = ut + \frac{1}{2}at^{2}$ changing i = u + 2as10=9 strange displacement, S = h In some cases, displacement and height is the same thing but not all the time. symbol Physics 1st Paper

Chapter 03 : Dynamics







Problem ////// A ball is thrown vertically downwards from the top of 50 m high tower with a velocity of 100 m/s. When will it return to the ground ? $h = -ut - \frac{1}{2}gt^{2}$ $\int u \int g \int n = -50 = -100t - \frac{1}{2}x9.8xt^{2}$ $\int u \int g \int n = -9.9t^{2} + 100t - 50 = 0$ 100ms => t= 0.4883s, - 20.696s final (Answer) Physics 1st Paper Chapter 03 : Dynamics

Poll-02

A stone of dropped freely from the top of a 100 m high tower. At the same instant another stone is dropped freely from the top of 80m high tower. When later mention stoned hits the grownal, what is the height of first stone from the ground?











Practice Problem(HW)

□ A bullet loses one-third of its velocity after penetrating 50 cm into a wood plank. How far will it go before coming to rest ?



Practice Problem(HW)

A car A is travelling on a straight level road with a uniform speed of 20m/s. It is followed by another car B which is moving with a speed of 10m/s with acceleration of 5m/s. After what distance and time will B catch up with A?





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