

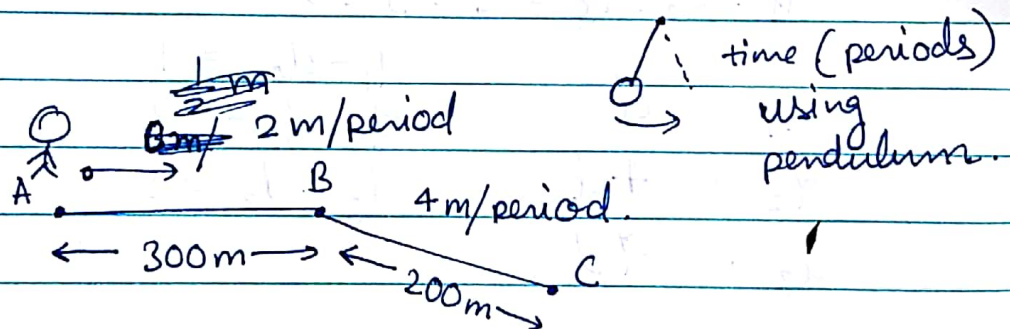


Q

What is average speed?

average speed is the speed defined
~~by over a period of time.~~
by total distance travelled over
total time period.

$$\text{avg speed} = \frac{\text{Total distance}}{\text{Total time.}}$$



If a man travelled from point A to point B at a speed of 2 meter per period and from B to C 4 m per period. What will be the avg speed from pt A to pt C?

$$\text{avg speed} = \frac{300 + 200}{\text{time}}$$

A to B

$$\text{distance} = 300 \text{ m}$$

$$\text{speed} = 2 \text{ m/period}$$

$$\text{time} = 150 \text{ period}$$



B to C

$$\text{distance} = 200 \text{ m}$$

$$\text{speed} = 4 \text{ m/period}$$

$$\text{time} = 50 \text{ period.}$$

$$\text{avg speed} = \frac{300 + 200}{150 + 50}$$

$$= \frac{500}{200} = 2.5 \text{ m/period}$$

So, it means if a man walk with the constant speed of 2.5 m/period then he can travel from pt A to pt C in exactly same time means in $200 \times 150 + 50 = 200$ period of time

Galileo discovered that the average speed of falling apple and falling stone is same if they were dropped from the same height.

~~Galileo also discovered~~

From the horse and ball experiment of Galileo, in phase III what will happen if ball is thrown up?

In earlier example,

Horse was running at constant speed



But Ball will ~~no~~ get back to the hands of rider.

If we do the same on speeding Horse,



Ball will follow the ~~for~~ curve.

He throw ball from the front side and he need to move his hand back side to catch the ball
3rd person saw



Issac Newton, the man of science.

Issac Newton was born on 25 December (Christmas Day), 1642 ~~at in the~~ county ~~at~~ "Woolsthorpe Manor" in England, ^{in a poor family}. His father, also named Issac Newton, had died 3 months before he was born. He was born prematurely and there was low possibility of his survival but somehow survived. ~~His name was I.~~

When Newton was 3, his mother remarried to R B Smith, leaving her son in the care of his maternal grandmother.

Young Newton disliked his stepfather as ~~her~~ mother ~~moved out~~ leave him because of him. ~~He was too~~ ~~he~~ disliked his parents to such an extent that he ~~the~~ threaten them.

~~"He wanted~~

He hate his mother and stepfather to the extent he tried to burn them and in their house. ~~\$~~ It is disappointing for ~~and~~ any child that he does not



get love of ^{both of} parents, his parents even
they were alive. A lonely childhood
without parents and poor financial
support checked him to such an
extent that he ~~does not~~ had no friends, ~~not~~
~~not~~ in school. Nobody liked him at all
in childhood and ~~to~~ also bullied as
people consider him weak.

~~He separated himself from groupism to avoid bull/ect and buried himself in studies. As a young ~~to~~ he was a curious kid like every child ~~some tried to be even~~~~

He was very curious ^{person} ~~not~~ since childhood asked her grandmother about flowers, grasses windmills etc.

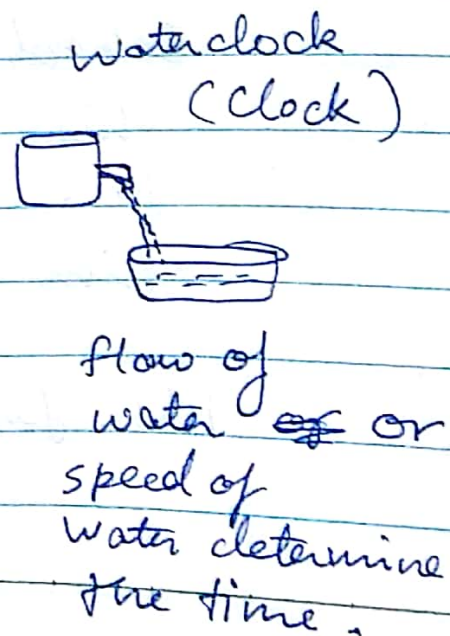
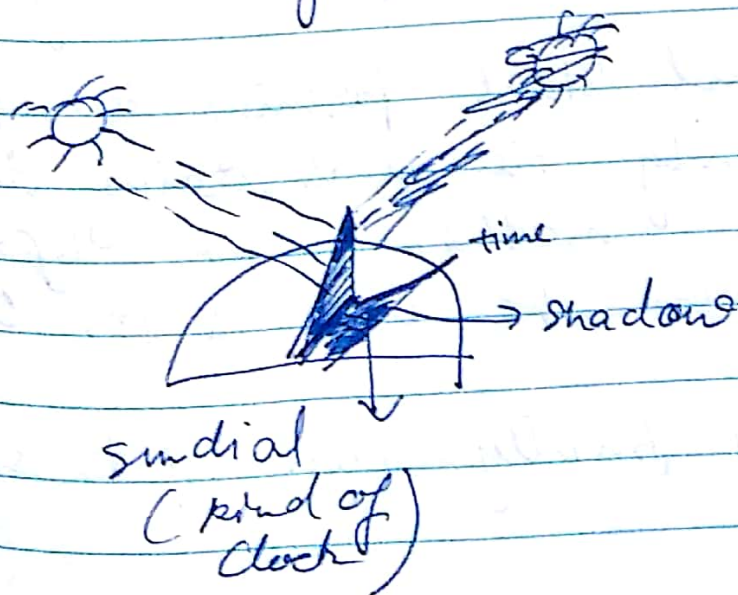
~~We all are born odd but tried to fit into even some people never fit in those are the great out of those few of them who are strong enough create history are those who created history.~~

He created sundial and waterclock
~~to~~ and people admire him a lot
for making this. It was all
because of his grandmother and
Uncle who put effort to make
(Rev William Asyough)

his life better.

Young Issac asked his uncl about how to solve difficult problem. He simply replied instedel of asking use try to find it by yourself with patience. He kept this learning his whole life.

At school people consider him weak and call him "Coward Newton" but when he was in 6th grade a fellow student John ~~come~~ start amoying him. ~~He learned patience. He beat~~ John with patience ^{and give him bad} and nobody after that call him "Coward Newton" as he hurt him badly. He beat John in education also become top ranked student. He distinguished himself by building sundial and model of watermills.



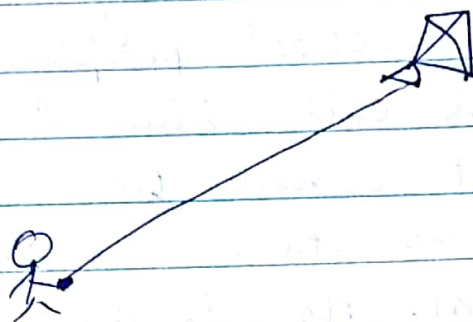


Date _____

my companion
plus

He entered in King's school on recommendation of his Uncle.

He made friends and became popular because of design of his kite. His kite flew the highest.



He ~~became~~ spends less time in studies his performs gets down. He was not among the top students.

At the age of 15, his stepfather died and Newton's mother return to his home. He dropped out of

school and start farming to support his family. He was doing this for the mother who left him when he was 3 yrs old.

His family finally decided to send



him back to school. He knew that if he wanted to stay away from farming & he needed to study hard as possible. He has no hobbies. He hurried himself to studies and ~~grad~~ graduated with honours.

~~He~~ In 1661, he was admitted to Trinity College, Cambridge on the recommendation of his Uncle who had studied there. He worked as male servant till 1664 in order to finance his studies till 1664 after that he got scholarship after completion in BA (Bachelor of Arts) degree and offered 4 more years of scholarship for MA (Master of Arts) degree.

At that time college teaching were based on Aristotle, Plato to ~~ren~~ modern philosopher Rene Descartes and astronomers like Galileo, Kepler. ~~roommate~~ John Widdowes ^{and his} ~~grave~~.

At college he was ^{and his} unhappy of his ~~because~~ because of his fellow students who put pleasure before work. He found them chasing bad women in villages and drinking instead of working ^{hard in studies} drinking and ~~as Newton got this opportunity with a lot of diff~~

hard in studies as he got opportunity of study ^{after total effort}.
 He comes up with a plan to study
 study plan. To avoid temptation,
 he hurried himself to studies
 He study 18 hours a day 7 days
 a week and barely go out
 of his room. ~~As his life was~~

~~In~~ ^{some time} 1665
 After ~~years of time~~, plague strucked to
 England, University was closed. ^{many people die} To
 avoid infection he returned to
 his home. family home at the
 He was sitting under the tree
 age of 22.

~~At the age of 22, he was sitting~~

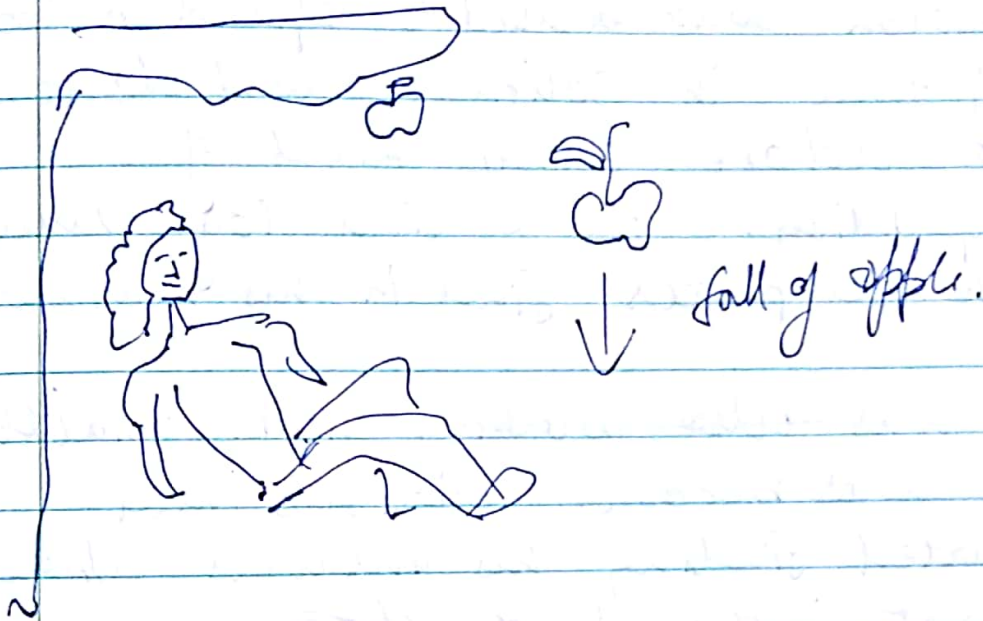
Just outside the family home,
 near apple orchard he was sitting
 and reading book.

Instead of thinking about girls
 he was thinking about moon
 around going around the
 earth and work of Rene's Descartes ^{Universe's big machine}

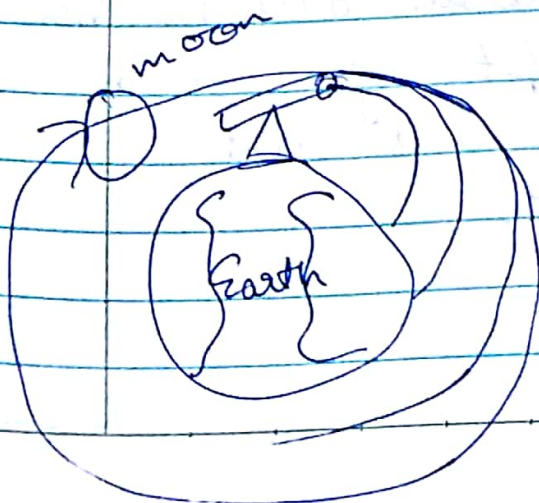
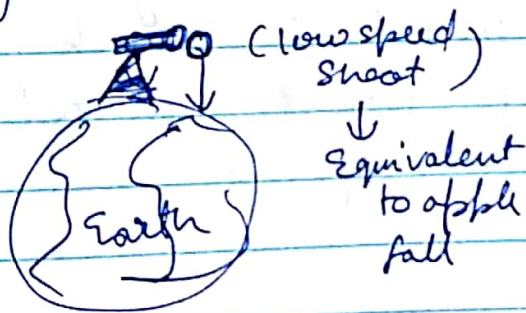
Suddenly, apple fall on his head
 and story began it changes everything
 He realized it is the same
 thing which told apple makes
 apple fall keep moon in the



to orbit. He call this invisible force as gravity.



He To prove this, he created a thought experiment of fixing canon at top of the hill



If speed of shooting is high enough then it will settle in orbit.



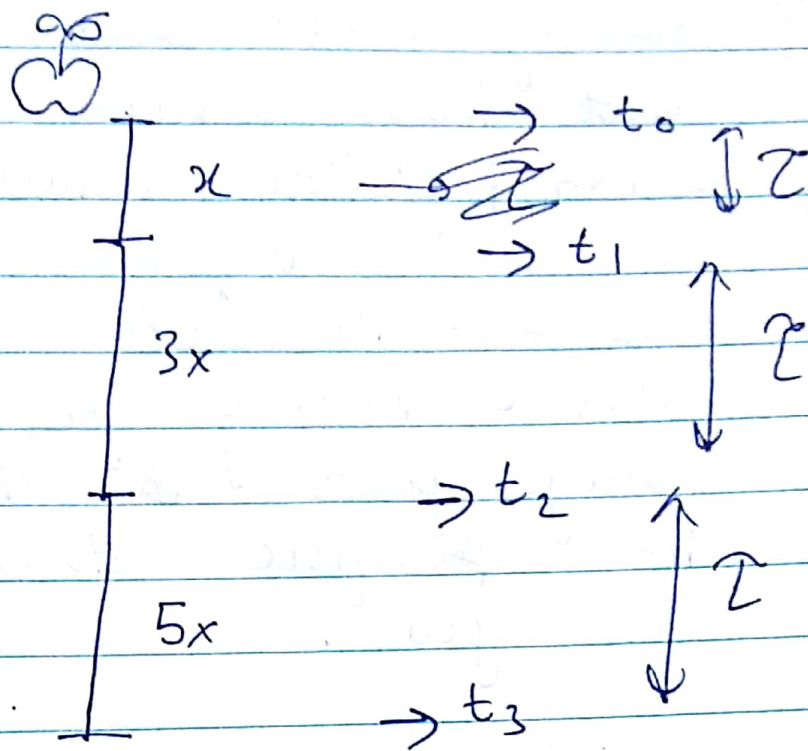
By this he confirmed it is the same thing.

Newton was used to spend a lot of time in solitude and alone. He adored every kind of computation. He found log value upto 50 places in his manuscript.

~~He was also working on binomial~~
He became curious and started finding his answers about what is the path ~~does~~ moon will follow and how much speed is required to settle it in this orbit. Even Today's space program's Newton's work is used whenever we want to settle a satellite in space and the orbit.

Galileo discovered about odd number series and concept of average speed. Newton was not happy with that.

From Galileo.

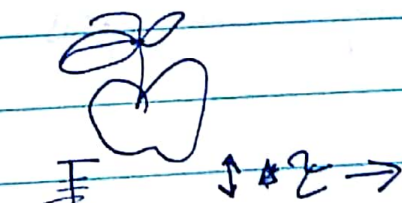


where $t_1 - t_0 = t_2 - t_1 = t_3 - t_2 = z$

Newton was not happy with these concepts,

he ~~so~~ invented a way to make this z infinitely

small.



make the period infinitely small.



Date _____

my companion
Plus

He was working on binomial and theorem ~~geometry~~ and came up with an idea which makes this period infinitely small ~~at the~~

~~age of~~ in 1666 still he was staying at home as college was ~~shut~~ closed due to plague struck ~~to~~ before an year.

He developed generalized binomial theorem which become calculus later. By this newton was able to calculate the change in distance when over a small infinitely small period of time.

This discovery changes everything.

From

Even Today these discovery helps in chemical predicting chemical reaction rate to the populations in economics. It changes everything



Date _____

myCOMPANION
PLUS

He was the greatest mathematician, physicist
in the history of science. He ~~became~~^{was} the
superhero for all the legend scientist
born after him like Albert Einstien,
and the whole story was began
just ~~by~~^{with} a fall of an apple.