Linear motion and random motion

What is random motion. Linear motion and random motion difference between. What is random motion with example. Linear motion and random motion difference. Distinguish between linear motion and random motion. Differentiate between linear motion and random motion.

Lost your password? Please indicate your email address. You will receive a link and create a new password via email. Type of movement in which the moving object path is a straight line for the venum class, see the straight line mechanism. Part of a SÃ © Rie OnClassical Mechanics F = DDT (MV) {\ Displaystyle {\ Textbf {F}} = {\ frac {D} {dt}} (M}}}} Books Applied Celestial Continuum Dynamics Kinematics Kinéica Statum Statóning Statóning Acceleration Angular Statencies Momentum Momentum Momentum Cinema Potential Potential Potential Forces Continuation Frame Insert Reference Immulsion Working Time Mounting Torque Speed Torque Speed Formulations of Mechanical Mechanic Motion Lagrangian Mechanical Mechanical Mechanical Mechanical LagangianoschamiltonÃ ¢ € "Jacobi EquationAppell's Equace MotionKoopman Ã ¢ â €" Von Neumann Mechanics Mechanics Core Relations Relationship Equations of movement displacement friction friction friction Friction Friction Intial / NÃ O-Inertial Mechanical Reference of the Planar Framework Movement of Particles Motion (Linear) of the Newton Law of Universal Gravitati in Newton 's Laws of Motion Relative Speed Dynamic Dynamic Dynamic Vibration Rotation Circular Movement Circular Motion Centrifical Force Centrifugal Force Centrifugal CORIOLIS Speed Tangential Speed Rotational Speed Speed Accelerã Angular Speed / Frequency / Speed Scientists Kepler Galillo Huygens Newton Hilleley Daniel Bernoulli Johann Bernoulli Euler D'Alembert Clairaut Lagrange Lallace Hamilton Poisson Cauchy Rough Liouville Appell Gibbs Koopman von Neumann Physics Physics Portal Motion Linear, also called Rectilan Movement , [1] is a one-dimensional movement along a straight line, and therefore can be mathematically described using only one spatial dimension. Linear movement can be of two types: uniform linear movement with constant speed or zero acceleration; and non-uniform linear movement with variable speed or acceleration other than zero. The movement of a particle (a point object) over a row can be described by its X {\ Displaystyle x} position, which varies with t {\ Displaystyle t} (time). An example of linear motion is an athlete that runs 100m along a straight range. [2] The linear movement is the most basic of all movements. According to Newton's first movement law, objects that do not experience any liquid forces will continue to move straight with a constant speed until they are subject to a liquid force. Under everyday circumstances, external forces, such as gravity and friction, can cause an object to change the direction of your child, so that your movement can not be described As linear. [3] One can compare the linear movement for the general movement. In general, the position and speed of a particle are described by vectors, which have a magnitude and direction. In linear movement, the instructions of all vectors that describe the system are the same and constant, which means that the objects move along the same axis and do not change the direction. The analysis of these systems can therefore be simplified, neglecting the components of direction of the vectors involved and dealing only with the magnitude. [2] Main displacement article: Displacement (vector) The movement in which all particles of a body move by the same distance at the same time is called transliftuable movement. There are two types of translation movements: rectilan movement; Curvy movement. As linear movement is a movement in a single dimension, the distance traveled by a particular object is the same as the displacement. [4] The si displacement unit is the meter. [5] [6] If x 1 {\ Displaystyle x_ {1}} is the initial position of an object and x 2 {\ Displaystyle x_ {2}} is the final position, Mathematically the displacement is given by: â® "x = x 2 x 1. 1. \ Delta x = x_ {2} -x_ {1}} The displacement equivalent on the movement of rotation is the angular displacement I {\ Displaystyle \} measured teat in radians. The displacement of an object can not be greater than the distance, because it is also a radius, but a shorter. Consider a person traveling to work daily. General displacement when he returns home is zero, since the person ends back where he began, but the distance traveled is not clearly zero. Speed Main articles: Speed speed and speed refers to a displacement in a direction in relation to a time interval. It is defined as the rate of variation of the displacement on change in time. [7] Speed is a vector greatness, representing a direction and a magnitude of motion. The magnitude of a speed is called speed. The speed unit is Masa 1, {\ Displaystyle {\ text {M}} \ CDot {\ text {S text {S}} {-} 1,}., That is meters per second [6] © Day Speed Mother of a moving body is its total displacement divided by the total time needed to reach a body from the starting point to the end point. It is an estimated speed for a ray of travel. Mathematically, which is given by: [8] [9] v avg = i x t = 2 x ¢ x 1 t 2 t 1 {\ displaystyle \ mathbf {v} {{\ {text avg}} = {{ \ frac {\ delta \ mathbf {x}} {\ delta t}} = {\ frac {\ mathbf {x} {2} - \ mathbf {x} _ {1}} {t_ {2} -t_ 1}}}} Where: t 1 {\ DisplayStyle T_ {1}} The time when the object was in position 1 {\ Displaystyle \ Mathbf {x} {1}} {\ DisplayStyle T_ {2}} is the time when the object was in position 2 {\ Displaystyle \ Mathbf {x} _ {2}} The magnitude of the speed | v avg | {\ Displaystyle \ Left | \ Mathbf {V} {\ Text {avg}}}}}} is called a multi-speed. Instant speed in contrast with a multi-speed speed, referring to the overall movement at a finite time interval, the instantaneous speed of an object describes the motion status of a certain point in time. It is defined, allowing the length of the time interval t i {\ Displaystyle \ Delta t} tend to zero, ie speed, is the derivative of time of displacement in time function. v = lim t t i ~ I x i t {\ displaystyle \ mathbf {v} = \ lim} {delta t \ a 0} {\ delta \ mathbf {x} \ over \ delta t}} = dxdt. {\ Displaystyle = {\ frac {d \ mathbf {x}} {dt}}.} The magnitude of instantaneous speed | V | {\ Displaystyle | \ Mathbf {V} |} It is called instant speed. Acceleration Main article: Acceleration The acceleration is defined as the rate of varying speed in relation to time. Acceleration is the second derivative of displacement acceleration This can be found by the position of differentiation with respect to time, twice or differentiation of speed in Relation to time later. [10] The acceleration unit is a 2 {\ Displaystyle \ Mathrm {MS ^ {- 2}}}. Or meters per second squared [6] if a mother {\ displaystyle \ mathbf {a} {{\ text {avg}}} is the acceleration of the eIV = V 2 AV 1 {\ DisplayStyle \ Delta \ Mathbf {V} = \ Mathbf {V} {2} - \ Mathbf {V} _ {1}} is the speed variation on the time interval ti {\ Displaystyle \ Delta T} Next, mathematically, one avit = v 2 av 1 t 2 at 1 {{\ displaystyle \ Mathbf {A} {\ text {avg}} = {{{{\ frac {\ Delta \ Mathbf {V} } {\ Delta t}} = {\ frac {\ mathbf {v} _ {2} - \ Mathbf {V} {1}} {t_ {2} -T_ {1}}}} Acceleration The instantane is the limit, as I t {\ DisplayStyle \ Delta t} approaches zero, the proportion of IV {\ Displaystyle \ Delta \ Mathbf {V}} and {i t \ displaystyle Delta t}, that is, a = lim ti Ã ¢ 0 i vit = dvdt = D 2 xDT 2 {\ displaystyle \ mathbf {a} = \ lim {\ delta t \ to 0} {\ frac {\ delta \ Mathbf {V}} {\ Delta t}} = {\ frac {d \ mathbf {v}} {dt}} = {\ frac {d ^ {2} \ mathbf {x}} {dt {2}} }} Main Push Article: In purrÃo (fansica) the rate of Acceleration, the third displacement derivative is known as spicy. [11] The threshing unit is a 3 {\ Displaystyle \ Mathrm {MS ^ - {3}}}. In the UK push the UK is also known as shock. Article Jounce Main: Jounce The rate of push variation, push, Room derived from displacement is known as Jounce. [11] The Jounce unit is a 4 {\ Displaystyle \ Mathrm {MS ^ - {4}}} which can be pronounced as meters per second quartic. Equations of Cinematic Main Article: Motion Equations In case of constant acceleration, the acceleration four fansical, speed, time and displacement can be related, using the equations of Movement [12] [13] [14] v f = vi + na {displaystyle \ mathbf {v_ {f}} = \ mathbf {v_ {i}} \ mathbf {a} \ mathbf {t} \; \} d = v it + 1 2 in 2 {\ displaystyle \ mathbf {d} =} {v_ {i}} \ mathbf {t} + {\ begin {matrix} {\ frac {1} {2}} \ final {matrix}} \ mathbf {a} \ mathbf {t} ^ {2}} v f = 2 v i 2 + 2 announcement {\ displaystyle {\ mathbf {v_ {f}}} ^ {2} = \ Mathbf {v_ {i}} ^ {2} 2 {\ Mathbf {A}} \ Mathbf {D}} d = 1 2 (v f + v i) t {\ Displaystyle \ Mathbf {D} = {\ tfrac {1} {2}} \ left (\ mathbf {v_ {f}} + {mathbf {v_ {i}} \ mathbf {t}} here, v i {{\ Displaystyle \ Mathbf {v_ {i }}}} It is the initial speed vf {\ \ displaystyle \ mathbf {v_ {f}}} is the final speed of {\ displaystyle \ mathbf {A}} is the acceleration {\ Displaystyle \ Mathbf { D}} is the displacement t {\ displaystyle \ mathbf {t}} is the moment these relationshi PS can be demonstrated graphically. The gradient of a row in a shift time graph represents the speed. The time graphic speed gradient gives acceleration, the area under the time-time graphic gives the displacement. The area under an acceleration time graph gives the varying variation. Analogy with the rotation movement see also: list of equations in classical mechanic ephanion, motion equations (constant acceleration) the table that It follows the rotation of a bodied body around a fixed axis: S {\ Displaystyle \ Mathbf {S}} is arc length, R {\ Displaystyle \ Mathbf {R}} is distance from the axis to any point, and on {displaystyle \ mathbf {a} {{\ mathbf {t}} is tangential acceleration, which is the component of acceleration It is parallel to the movement. In contrast, the centriputous acceleration, ac = v 2 / r = i 2 r {\ displaystyle \ mathbf {a} {\ mathbf {c}} = v {2} / r = \ ^ 2} R}, is perpendicular to the movement. The forcing component parallel to the movement, or equivalently, perpendicular to the line linking the application point to the axis is f Ã ~ ¥ {\ Displaystyle \ Mathbf {F} _ {\ PERP} . The sum is on J = 1 Ã, a t o n {\ displaystyle \ mathbf {j \ \ = 1 \ mathbf {a} \ n} particles and / or app application points. Analogy between the linear and rotational movement movement [15] linear rotational movement movement defining equation displacement = x {\ displaystyle \ mathbf {x}} angular displacement = i {\ displaystyle \ theta}} i = s / r { \ displaystyle \ theta = \ Mathbf {S} / \ Mathbf {R}} speed = v {\ displaystyle \ mathbf {v}} angular speed = i {\ Displaystyle \ omega} i = v / r {\ Displaystyle \ omega = \ Mathbf {V} / \ Mathbf {R}} Acceleration = A {\ Displaystyle \ Mathbf {A}} Angular Acceleration = A ± {\ Displaystyle \ alpha} I Â ± = A / R {\ Displaystyle \ alpha = \ Mathbf {A_ {\ Mathbf {t}}} / \ Mathbf {R}} mass m = {\ displaystyle \ mathbf {m}} {displaystyle \ mathbf {I}} i = Ã ¢ mjrj 2 {\ Displaystyle \ Mathbf {i} = \ Mathbf {M_ {M_ {J}}}} {R_ {J}} ^ {2}} Force = F = MA { \ displaystyle \ mathbf {f} = \ mathbf {m} \ mathbf {a}} torque = i = II Ã {\ displaystyle \ tau = \ mathbf {i} \ alpha} i = a rj fa ¥ j {\ DisplayStyle \ tau = \ Sum \ Mathbf {R_ {J}} \ Mathbf {f} {\ perp \ mathbf {{_ {j}}} mlege ntum = p = mv {\ displaystyle \ mathbf {p} = \ mathbf {m} \ mathbf { v}} the angular moment = l = i i {\ displaystyle \ mathbf {l} =} {} \}} l = the RJPJ {\ displaystyle \ mathbf {l} = \ sum \ mathbf {R_ {j} } \ Mathbf {p} \ Mathbf {_ {J}}} Cinema} Cinema = 1 2 mv 2 {\ {displaystyle \ frac {1} {2}} \ Mathbf {M} \ Mathbf {V} ^ {2 }} Cinema Energy = 1 2 I 2 {\ displaystyle {\ frac {1} {2}} \ mathbf {I } \ omega ^ {2}} 1 2 Ã¢ mjv 2 = 1 2 Ã¢ mjrj 2 I 2 {\ displaystyle {\ frac {1} {2}} \ soma \ mathbf {m_ {j}} \ mathbf {v} ^ {2} = {\ frac {1} {2}} \ soma soma {M_ {J}} \ Mathbf {R_ {j} ^ {2}} ^ {2}}} ^ {2}} The following table shows the analogy in units derivatives: see also forces of centrupetal of angle movement inertial framework of linear reference of mechanical reference of linear motors of movement movement of movement of planar particles and derivatives reciprocating the rectilan propagation of propagation of Linear motion uniformly accelerated references ^ Resnick, Robert and Halliday, David (1966), physics, Section 3-4 ^ AB "Basic principles to understand the sporting mechanic." ^ "Motion Resource Information Center". 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