

Unit 2: Describing Motion

2A: Distance and Displacement

displacement - an object's overall change in position; the SI unit is the meter (m).

distance - is a measure of how far an object has traveled; the SI unit is the meter (m).

2B: Speed and Velocity

average speed - an object's total distance traveled divided by the time elapsed. The SI unit is meters/second (m/s).

average velocity - an object's displacement divided by time elapsed. The SI unit is meters/second (m/s).

constant velocity - velocity that remains unchanged.

displacement - an object's overall change in position; the SI unit is the meter (m).

distance - is a measure of how far an object has traveled; the SI unit is the meter (m).

instantaneous velocity - the velocity of an object at a specific point in time.

2C: Acceleration and Kinematic Equations

average acceleration - the rate of change of velocity divided by time elapsed. The SI unit for acceleration is meters per second squared (m/s^2).

constant acceleration - acceleration that doesn't change.

instantaneous acceleration - acceleration at a given moment in time.

kinematics - the science of describing the motion of an object.

2D: Graphing Motion

average acceleration - the rate of change of velocity divided by time elapsed. Can be found by connecting two points on a line on a velocity versus time graph and finding the slope of that line.

average velocity - an object's displacement divided by time elapsed. Can be found by connecting two points on a line on a position versus time graph and finding the slope of that line.

instantaneous acceleration - acceleration at a given moment in time. Can be found by drawing a line tangent to a point on a line on a velocity versus time graph and finding the slope of that line.

instantaneous velocity - the velocity of an object at a specific point in time. Can be found by drawing a line tangent to a point on a line on a position versus time graph and finding the slope of that line.

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2E: Free Fall

free fall - an object in motion only under the influence of the force of gravity.

2F: Relative Velocity

frame of reference - the view of the person or object observing the motion.

Pythagorean Theorem - a theorem that states that the square of the length of the hypotenuse of a right triangle equals the sum of the squares of the lengths of the other two sides.

relative velocity - the vector difference between the velocities of two objects; the velocity of a body with respect to another regarded as being at rest.

resultant - a vector quantity that is equal to the addition of two or more vector components acting at the same point.

2G: Horizontally Launched Projectiles

hang time - the amount of time a projectile remains in the air.

projectile - an object that is moving through the air.

range - the displacement of a projectile in the horizontal direction.

trajectory - the path taken through the air.