Cheatography

Kinematics in One Direction Cheat Sheet

by leahboyd14 via cheatography.com/49480/cs/16532/

Displacement and Distance

Displacement- vector extending from object's initial position to its final position

Distance- scalar quantity representing the actual path followed by an object

Distance equals displacement when the object travels in a straight line and does not reverse its direction

Velocity and Speed

Velocity- vector describing the rate of displacement

average velocity = displacement/time

Instantaneous velocity- velocity at a specific time

Speed- scalar calculating the rate of distance

average speed = distance/time

If an object travels in a straight line, then speed and velocity are interchangeable

Acceleration

Acceleration- rate of change of velocity

acceleration = change in velocity/time

Uniform acceleration- magnitude remains constant; **constant acceleration-** magnitude and direction are constant

If acceleration acts in the same direction as velocity: *speed increases*

If acceleration acts in the opposite direction as velocity: *speed decreases*

If acceleration acts perpendicularly to velocity: *direction changes*

The acceleration of gravity is 10 m/s^2

Kinematic Equations

$vf^2 = vi^2 + 2ax$

$vf = vi + at$

$x = vi*t + 0.5at^2$

$v=x/t$ or $x=vt$

Kinematic Graphs

GRAPH	SLOPE	AREA
Position (or distance) v. time	Velocity	N/A
Velocity v. time	Accele-ration	Displacement (change in position)
Acceleration v. time	N/A	Change in velocity

By **leahboyd14**

cheatography.com/leahboyd14/

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