Cheatography

Force and Motion Cheat Sheet

by starfruits via cheatography.com/47283/cs/13825/

Vocab

Motion	distance from another object changes, change in position
Reference point	place or object used for comparison
Speed	the time it takes something to move a distance
Velocity	speed and direction
Vector quantity	size/magnitude and direction
Scalar quantity	size/magnitude
Constant speed	a speed that stays the same through the distance
Instantaneous speed	speed at any instant
Distance	the length of all parts/between two points
Displacement	the distance from start to end, the overall change in position and a direction
Acceleration	the rate at which velocity changes
Equilibrium	all the forces of an object balance out
Inertia	the property of an object that it resists to change in motion
Mass	amount of matter in an object
Momentum	mass in motion

Important Information

Force	-a push or a pull
	-results in two or more objects interacting with each other
	-all forces have magnitude and direction
	-measured in Newtons (N)
Acceleration	-increase speed: speed up
	-decrease speed: slow down, deceleration
	-change direction

Important Information (cont)

Speed (distance-time) graphs	-point on graph= location of an object from 0 at a particular time
	-straight slope=constant speed
	-steeper slope=faster
	-horizontal line=no movement
	-curved line=acceleration
Velocity-time graphs	-point on graph=speed of object at a particular time
	-straight line=constant acceleration
	-steeper slope=greater acceleration
	-horizontal line=constant speed

Formulas

Speed	distance / time
Distance	speed x time
Time	distance / speed
Average speed	total distance / total time
Acceleration	final velocity - initial velocity/time
Mass	force / acceleration
Force	mass x acceleration
Acceleration	force / mass
Momentum	mass x velocity

Newton's Laws of Motion

Law 1	An object at rest will stay rest, and an object in motion will stay in motion until a force acts on it.
Law 2	Force causes acceleration, while mass resists acceleration.
Law 3	Any action has an equal and opposite reaction.

Types of Forces	
Contact forces	a force exerted by physically touching
Applied force	a force applied by a person/object to change another object's motion
Normal force	a force exerted by a surface on an object resting on it
Friction	one surface exerts another when in contact, acts in opposite direction to the object's motion
Non-contact force	a force that acts without physically touching
Gravity	a natural force that pulls objects toward the center of the earth
Magnetism	materials with magnetic fields that attract/repel other objects
Electrical force	the force of two charged objects attracting/repelling each other
Centripetal force	force that keeps objects moving in a circular path, "center-seeking"
Centrifugal force	perception of being pushed outward, "false force"