

Name _____ Period _____

Motion, Forces, and Newton's Laws

Questions:

Notes:

Newton's First Law: An object in _____ will stay in motion and objects at _____ will stay at rest _____ acted upon by an _____ force. This is also known as the law of _____.

Inertia is a _____ of an object to _____ change in its state of motion. More _____ objects have more _____.

Newton's Second Law: The force of an object has _____ on how big it is (mass) and how fast it's _____ (acceleration). The formula for this is Force = _____ x _____ (F = ma)

Newton's Third Law: For every _____ (force) there is an equal and _____ reaction (force). This is known as the _____ / _____ law. Objects exert a force even when they are not _____. All objects have _____ and will resist motion. When you _____ on something, that _____ force pushes back with the same _____.

Speed and Velocity:

_____ is how far an object moves in a certain amount of _____; how fast it is moving (75 km / hour)

speed = distance / time or $s = d/t$

_____ is a measure of how fast something is moving in a certain _____.
(50 meters/second NW)

velocity = distance & direction / time

Distance and Displacement:

Distance – measure of how far an object _____.

Displacement - measure of how far from the _____ point.

Summary:

Balanced and Unbalanced Forces:

A _____ force is a pair of forces that produces no _____.
You _____ on a wall with a force and the wall _____ back to
you with its own force. _____ you, nor the wall moves.

An _____ force is a pair of forces that produces _____.
You push a box across the floor to the _____ side of the room.

Acceleration: changing _____ or direction. – speeding up
(_____ acceleration) – slowing down (_____ acceleration) .

Acceleration can be calculated in _____ ways.

acceleration = final speed – initial speed ÷ time

acceleration = Force / mass

Friction and Momentum:

_____ is a force that causes objects to _____ motion
when they come _____.

_____ is the amount of matter that is _____ and how
fast the matter is _____.

Momentum = mass x velocity or $M = m \times v$

Gravity: Gravity causes objects on Earth to fall at a _____ of about 9.8 m/s^2
(also know as 1 G). This means that when an object is in _____, every
second it increases its speed by 9.8 m/s. How fast would an object be falling after 5
seconds? _____ G; approximately 50 m/s

_____ is a measurement of the _____ force acting
on an object's mass.

weight = mass x acceleration due to gravity or