Name _____ Date _____ Period _____

Newton's Laws of Motion Test Study Guide

Concepts to be tested:

Force, Motion, Friction
Speed, Velocity, Acceleration
Motion Graphs including Speed/Time & Position/Time Graphs
Difference between Average, Instantaneous, and Constant Speed
Newton's 1st Law – Inertia
Newton's 2nd Law – F=MA
Newton's 3rd Law –Action/Reaction
Mass vs. Weight (Newtons vs Kg)
Gravity& Gravitational Acceleration (9.8m/s^2)

Question		Answer
1.	In science, a force is a	A push or a pull
2.	When one object pushes or pulls another object, the first object is _____ a force on the second object.	exerting
3.	Two ways that forces are described.	Direction and strength
4.	The SI unit used to measure the strength of a force is the _____	Newtons
5.	The overall force on an object after all the forces are added together is called the _____	Net force
6.	When two forces act in the same direction, they are_____ together.	added
7.	Adding a force acting in one direction to a force acting in the opposite direction is the same as adding a(n) ____ number and a(n) _____ number.	Positive, negative
8.	Unbalanced forces can cause an object to change its motion in three ways. What are they?	Start moving, stop moving, change direction

Question		Answer
9.	Is the following sentence true or false? Unbalanced forces acting on an object will change the object's motion.	True
10.	Equal forces acting on one object in opposite directions are called ___.	balanced
11.	Is the following sentence true or false? *Balanced forces acting on an object will change the object's motion.*	False
12.	When you add equal forces exerted in opposite directions, the net force is _____.	0
13.	Which kind of friction requires more force to overcome, rolling friction or sliding friction?	Sliding friction
14.	What kind of friction occurs when moving parts have ball bearings?	rolling
15.	How does oil between machine parts reduce friction?	changes sliding friction to more fluid friction
16.	How is friction involved in sledding and skiing?	little friction between sledding and skiing because the snow is smooth
17.	Why does some friction occur with seemingly smooth surfaces?	Even smooth surfaces have irregular surfaces. When irregularities of two surface come in contact, friction occurs.
18.	For an unmoving object to start moving, a(n) _____ has to act on it.	Unbalanced force

Question		Answer
19.	What is Newton's first law of motion?	The first law says that an object at rest tends to stay at rest, and an object in motion tends to stay in motion, with the same direction and speed.
20.	What kind of friction occurs when an object moves through liquid or gas?	Fluid
21.	What kind of friction occurs when solid surfaces slide over each other?	Sliding
22.	What kind of friction occurs when an object rolls over a surface?	Rolling
23.	What kind of friction occurs when objects are not moving?	Static
24	What is inertia?	Inertia is the resistance of any physical object to any change in its state of motion
25.	What is another name for Newton's first law?	Law of Inertia
26.	The amount of inertia an object has depends on its ___.	mass
27.	What is Newton's second law of motion?	The second law states that the acceleration of an object is dependent upon two variables-the net force acting upon the object and the mass of the object.
28.	What is the equation that describes the relationship among the quantities of force, mass, and acceleration?	F=ma
29.	1 N is equal to 1 what?	1 kg/9.8m/s^2
30.	How can you use Newton's second law to find force?	If you know the mass and acceleration of an object you can calculate for force.
31.	What are two ways to increase the acceleration of an object?	Increase mass or increase force

Question		Answer
32.	What is Newton's third law of motion?	For every action there is an equal & opposite reaction.
33.	What is the name given to the force exerted by the first object on a second object?	Action
34.	What is the name given to the force exerted by the second object back on the first object?	Reaction
35.	The action and reaction forces in any situation will always be _____ and _____.	Equal and opposite

36 Bugs Bunny sits on the ground. He is being pulled along the ground by Elmer Fudd with 16N of force at a rate of 2 m/s^2 (This is his acceleration.) What is Bugs Bunny's mass? (Use Newton's 2nd law formula Force = mass x acceleration)

GIVEN	WORK
F= 16N M = ? A = 2 M/S2	M=F/A M=16/2
ANSWER = M= 8KG	

37. Nascar driver, Jeff Gordon, has a car that is one of the fastest on the circuit. If it travels 600 miles in 4 hours, what is his cruising speed?

GIVEN	WORK
S=? D= 600MI T = 4HRS	S=D/T S=600/4
ANSWER = S=150MPH	