Name _____ Period _____ Date _____

REVIEW FOR QUIZ: FORCE AND NEWTON'S LAWS OF MOTION

1. What is Newton's 1st Law?

_____

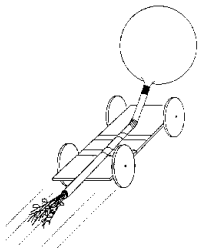
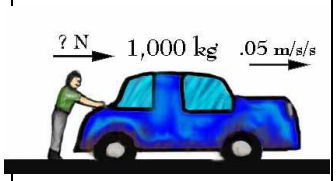
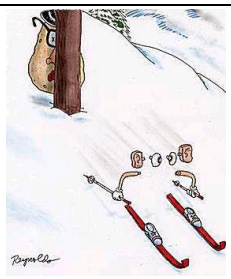
2. What is Newton's 2nd Law? (include the formula)

_____

3. What is Newton's 3rd Law?

_____

4. Which law is demonstrated by each of the following pictures? Also EXPLAIN your choice.

A	B	C	D
 A balloon powered car moves forward as the air flows out the back of the balloon.	  Both of these guys are competing in a bike race.	 Mr. Allal's car broke down and now he has to push it home!	 Mr. Potato Head was skiing downhill until he ran into a tree! Mr. Potato Head stops, but the skis keep going…
Law Demonstrated by this picture (and explain!)	Law Demonstrated by these pictures (and explain!)	Law Demonstrated by this picture (and explain!)	Law Demonstrated by this picture (and explain!)

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Vocabulary Check

Fill in the blanks for the definitions below using the words in the word bank.
Use each word only once.

motion	**friction**	**inertia**	**velocity**	**force**	**speed**	**Newton**	**balanced forces**
weight	**net force**	**momentum**	**gravity**	**acceleration**	**unbalanced forces**	**mass**	

1. _____: the amount of matter in an object

2. _____: tendency of an object to resist a change in motion

3. _____: measurement of the distance an object travels in one unit of time.

4. _____: type of force that can change an object's motion

5. _____: speed in a given direction

6. An object is in _____ when its distance from another object is changing.

7. _____: an increase or decrease in speed or change in direction

8. _____: a push or a pull

9. _____: the force gravity exerts on an object

10. _____: unit used to measure force

11. _____: type of force that will not change an object's motion

12. _____: sum of all forces acting on an object

13. _____: invisible force that pulls objects together (force that keeps us on Earth)

14. _____: force that one surface puts on another when they rub against each other

15. _____: the product of an object's mass and velocity

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MASS VERSUS WEIGHT:

A new planet has recently been discovered- Planet Blunarflop. The gravitational force of this new planet is much stronger than Earth's gravitational force. Mr. Bowers will be traveling to Planet Blunarflop this summer, and he has some questions for you:

1. Would his <u>weight</u> *increase*, *decrease*, or stay the *same* on Planet Blunarflop?
   _____ Why? _____

2. Would his <u>mass</u> *increase*, *decrease*, or stay the *same* on Planet Blunarflop?
   _____ Why? _____

Calculating Net Force:

3. When the **net force** acting on an object **equals 0:**

   a. Is it a **balanced** or **unbalanced** force? _____
   b. Will the object's motion change? (Yes or No) _____

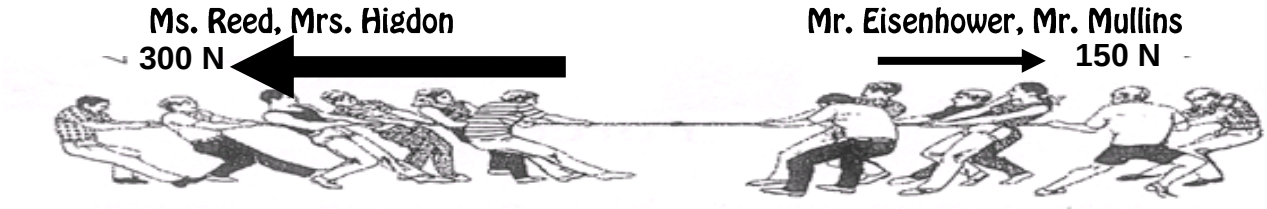
4. When the **net force** acting on an object does **not equal 0:**

   a. Is it **balanced** or **unbalanced** force? _____
   b. Will the object's motion change? _____

5. Label the following examples as **balanced (B)** or **unbalanced (U)** forces:

   a. A dog pulls on the leash to go forward, but the owner pulls back with the same amount of force. _____
   b. Mr. Mullins rollerblades down LPMS's parking lot. _____
   c. Mrs. Filano's clock hanging on a nail in her wall. _____
   d. Mrs. Raman pulls Mr. Eisenhower down the hallway in a chair. _____

6. Ms. Reed, Mrs. Higdon and some friends have challenged Mr. Eisenhower, Mr. Mullins and some of their friends to a tug-o-war contest. The picture below shows their contest. Using the picture, calculate the <u>net force</u>, and <u>explain the results</u> of the contest. Is this an example of a <u>balanced or unbalanced</u> force?



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7. Ms. Kron and Ms. Castillo both want to show a movie to their classes. The TV is in the doorway between their rooms. Ms. Kron pulls the TV towards her room with **70N** of force while Ms. Castillo pulls back with **45N** of force towards her classroom. What is the **net force** and in what **direction** does the TV move?

8. Mr. Earley is visiting his sisters at their home. Their dogs, Snickers (15kg) and Louie (35kg), are playing out in the yard. Mr. Earley decides to pull Snickers around the neighborhood in his wagon. As Mr. Earley starts running away from the house with Snickers in the wagon, Louie spots them and decides he wants to ride in the wagon too! Louie runs up and jumps in the wagon. Though he tries very hard, Mr. Earley can't pull the wagon any harder than he was when just Snickers was inside. As a result, he has to slow down to a walk to finish pulling the dogs through the neighborhood. Identify which of **Newton's Laws of Motion** most closely relates to this situation and **explain** your choice.

9. Mr. Watts wasn't paying attention as he drove one of his cats to the vet. He was going 50 mph when a light suddenly turned red. When Mr. Watts slammed on his brakes to stop the car, he had to put out his arm to catch his cat as it flew forward. Identify which of **Newton's Laws of Motion** most closely relates to this situation and **explain** your choice.