## SHOW ALL WORK FOR MATH PROBLEMS

## Newton's Laws of Motion Quiz Review

1. Newton's first law of motion states : \_\_\_\_\_\_

2. Newton's second law of motion states : \_\_\_\_\_

3. Newton's third law of motion states : \_\_\_\_\_\_

Instructions: Each of the items below is best represented by one of the Newton's Laws of Motion. Write a 1, 2 or 3 for each of the following to indicate whether it's Newton's 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> law.

- 4. \_\_\_\_\_A climber pulls down on a rope causing his body to lift upward and rise along the rope.
- 5. \_\_\_\_\_Force= Mass x Acceleration
- 6. \_\_\_\_\_Two bumper cars collide into each other and each car jolts backwards
- 7. \_\_\_\_\_When you give your friend a lift on your bike you have to pedal harder and faster to keep the same speed (acceleration) as you had when you were on your bike alone
- 8. \_\_\_\_\_For every action there is an equal and opposite reaction.
- 9. \_\_\_\_\_A smaller cannon ball leaves a cannon much faster than a larger, heavier cannon ball fired at the same time.
- 10. \_\_\_\_\_When you are standing in a subway train and the train suddenly stops but your body continues to move forward.
- 11. \_\_\_\_\_ It is much easier to carry your backpack when it is empty rather than when it's full of textbooks.
- 12. \_\_\_\_\_A boy is going down a slide. As he reaches the bottom, friction causes him to slow down and stop.

- 14. Describe how mass and inertia are related.
- 15. How does mass effect acceleration?

<sup>13.</sup> What is inertia?

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16. Kg measures	18. M/s <sup>2</sup> measures
17. N measures	19. 1N=

20. The acceleration due to gravity on Earth is \_\_\_\_\_\_ and on the Moon it is \_\_\_\_\_\_.

21. What are the three formulas which describe the relationship between mass, force and acceleration?

22. A force of 52 N acts upon a 4 kg block sitting on the ground. Calculate the acceleration of the object.

23. A 5 kg block is pulled across a table by a force of 61 N. Calculate the acceleration of the object.

24. A roller coaster pushes a 25 kg person upward with a force of 300 N. What is the acceleration?

25. An object of mass 10 kg is accelerated upward at 2 m/s<sup>2</sup>. What force is required?

26. What is the mass of an object if a force of 17 N causes it to accelerate at 1.5 m/s/s?

27. What is the acceleration of a 10 kg object if a force of 3 N is applied to it?

28. What is the mass of an object that requires a force of 25 N to accelerate at 5 m/s/s?

29. How much weight is generated by an 80 kg person on planet earth? On the moon?

30. What is the mass of a falling rock on planet earth if it weighs 147 N?