Name _____

Newton's Laws

1. Newton's 1st law: An object in motion tends to _____

   and an object at _____ tends to _____

   unless _____

2. Newton's second: Force = _____ times _____

3. Newton's third: For every _____there is an

   _____

4. What is the equation which compares rate to distance traveled? _____

5. Solve the following equations using that formula:

   Distance = 500 miles
   Rate = 25 miles/hour
   Time = _____

   Rate = 70 miles/hour
   Time = 7 hours
   Distance = _____

   Distance = 360 yards
   Time = 12 seconds
   Rate = _____

6. For Newton's first law, give an example of the following –

   An object in motion stays in motion _____

   _____

   An object at rest stays at rest _____

   _____

7. For Newton's second law (F=MA), please solve the following –

   A pencil has a mass of 2 grams. If it accelerates at 10 meters per second squared, what is the force of the pencil?

   _____

8. One use of Newton's second law is to calculate gravity. W=MG. Weight is mass times gravity. G=9.8 m/s^2 and let's use the mass of 10 kg. What is the weight of the object?

   _____

9. Let's say you move to a planet where the gravity is ten times that of earth.
What is the weight of the object in problem 8?

_____

10. On the moon, gravity is 20% that of earth. That would be 1.96m/s^2.
What is the weight of that 10 kg. object on the moon?

_____

11. Give an example of each of the following:

Force_____

Mass_____

Acceleration_____

12. For Newton's third law, give one example of how this works on earth

_____

13. For Newton's third, give an example of how this works in space.

_____

14. Using Newton's second, explain what would happen if a vehicle with a mass of 1000 kg and a small opossum with a mass of 1 kg were to collide head-on with a force of 14 kgm/sec^2.
What is the acceleration (in m/sec2)? Why would this damage the opossum more than the car?

What would happen? _____

What is the acceleration on the car? (calculate) _____

On the opossum? (calculate) _____

Why does the opossum suffer more? _____

_____