Name: Key Date: _____

IP – 614 Class: _____

Review For Quiz – Newton's Laws and of Motion and Gravity

$g = 9.81\ m/s^2 \cong 10\ m/s^2$	$W = mg$	$F = ma$
For all questions, assume negligible air resistance (unless a problem states otherwise).		

1. Fill in the following table:

Variable	Term	SI units	Other Units
a	acceleration	m/s^2	$miles/hr^2$
F	Force	N	pounds
m	mass	kg	grams, milligrams
W	weight	Newtons	pounds, stones.

2. What is the amount of matter in an object called?

Mass.

3. What would change if I went to the moon: my mass, my weight, both, or neither? Explain.

weight, b/c weight is the amount in which gravity is pulling an object, since the moon doesn't have the same gravity as earth... my weight would change.

4. State Newton's 1st law in your own words.

When something is moving, it will keep on moving forever in a straight line.

5. What is an example of Newton's 1st law? Explain your example.

standing on a bus, we started moving backward when the bus suddenly starts moving forwards.

6. If a hockey puck slides on a perfectly frictionless surface, will it keep moving at a constant speed, or will it eventually slow to a stop? Explain.

No!

7. If you are driving at a constant speed around a bend in the road, is there a net force acting on you? (hint: are you accelerating?) If so, what is supplying the net force?

Yes, changing direction! → tire + road!

8. How much does a 5 kg book weigh on the surface of the earth? **SHOW YOUR WORK!**

$m = 5\,kg$ $\quad W = m \cdot g$

$W = ?$ $\quad = 5(10)$

$g = 10\,m/s^2$ $\quad = 50\,N$

9. What is Newton's Law of Universal Gravitation?

$F_g =$ $\quad F = G\frac{m_1 m_2}{r \cdot d^2}$

10. What happens to the force of gravity if one or both of the masses increase?

Increase

11. What happens to the force of gravity if the masses are moved closer together?

Stronger

12. Would you weigh more or less at the top of Mt. Everest than you would at sea level? Why?

less!

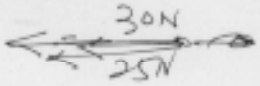
13. What are the net forces of the following:
    a) 20 N left, 30 N right

10N right

    b) 5 N up, 2 N down

3N up

14. Mindy and Sally are pushing a box. Mindy pushes with a force of 30 N to the left. Sally pushes with a force of 25 N to the left. What is the net force on the box? What is the box doing?



Net Force = 55 N

The box is moving to the left!