

Name _____ Date _____ Period _____

Worksheet: Equation Review

CHAPTER 3: Newton's First Law - Inertia

Directions: Answer the following questions based on reading from Chapter 3 (pgs. 28-41) and/or from notes in class.

EQUATIONS: $1 \text{ kg} = 2.2 \text{ lbs}$ $1 \text{ kg} = 10 \text{ Newtons}$ (actually 9.8, but we round up)

QUESTIONS:

1. What is the tendency of an object at rest when no forces act on it?
2. What is the tendency of an moving object when no forces act on it?
3. What is the standard SI unit for mass?
4. What is the standard SI unit of measurement of weight?
5. What is the weight of a 1 kg brick?
6. If a man has a mass of 100 kg, calculate his weight in newtons.
7. A ball weighs 1.5 N. What is the mass in kilograms?
8. Mr. Wilson weighs 100 kig. Calculate his mass in kilograms and in pounds.
9. In an orbiting spacecraft, you are handed two identical closed boxes, one filled with sand and the other filled with feathers. How can you tell which is which without opening the boxes?

10. Suppose you place a ball in the middle of a wagon that is at rest and then abruptly pull the wagon forward. Describe the motion of the ball relative to the ground and the wagon.
11. Which has more mass, a 2 kg fluffy pillow or a 3 kg small piece of iron? More volume? Why are your answers different?
12. Calculate your own mass in kilograms and your weight in newtons.
13. What is the weight in newtons of an automobile with a mass of 1800 kg?
14. Gravitational force on the moon is only $\frac{1}{6}$ that on Earth. What is the weight of a 10 kg object on the moon and on the Earth? What is its mass on the moon and the Earth?
15. If a woman weighed 500 N on Earth, what would she weigh on Jupiter, where the acceleration of gravity is 26 m/s^2 ?