_____   _____

1.

Newton's second law of motion states that the acceleration of a body is proportional to the force on it. This is consistent with our experience that the harder we push on a moveable body, the quicker its speed changes. The second law goes on to state that the constant of proportionality between the force and the acceleration is the "mass" of the body. In the form of an equation the second law reads $\vec{F} = m\vec{a}$, where $\vec{F}$ is the force vector, m is the scalar mass, and $\vec{a}$ is the acceleration vector. The mass may be considered the property of a body that determines its resistance to changing its velocity.

(a)

(b) "consistent with"

(c)

   equation of motion _____   mass _____

   acceleration _____   velocity _____

2.

(a) A measure of the motion of a body equal to the product of its mass and velocity.

   _____

(b) Physics that deals with the relationships and conversions between heat and other forms of energy.

   _____

(c) A collision of particles in which the total kinetic energy of the particles is conserved.

   _____

3. Put into English.

   (a)

   (b)

   (c) E $e^{-E/kT}$

4.

   The differential work W done on the gas in compressing it by moving the piston in a differential amount $-dx$ would be the pressure P times the area A, times the distance, which is equal to minus the pressure times the change in the volume dV.

   _____