

科学英語 (物理) 12/21 演習 担当：栗本

学籍番号 _____ 氏名 _____

1. 以下の英文を読み，次の問いに答えよ

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) 下線部を和訳せよ .

(b) "consistent with" を用いて英文を作れ .

(c) 以下の英語の語句を和文の物理用語で言い換えよ .

equation of motion _____ mass _____

acceleration _____ velocity _____

2. 以下の英文が意味するものは和文の物理用語ではどう言われているか答えよ .

(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) 方向と大きさの両方を持つ量はベクトルである .

(b) 分子が衝突することによってピストンに与えられる単位時間当たりの運動量が力に等しい .

(c) ある速度をもつ分子を見いだす確率は , 運動エネルギーを E として $e^{-E/kT}$ のように変化する .

4. 以下の英文の内容は物理学の何という法則を表わしているかを答えよ .

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 .
