Answer on Question #48709 – Physics – Mechanics | Kinematics | Dynamics

Question.

The acceleration, a, of an object produced when a force is applied is given by the following formula, where F represents the force acting on the object and m represents the mass of the object.

$$a = \frac{F}{m}$$

If a has units of meters per second squared and m has units of grams, what must be the units of F?

A. grams
B. meters per second
C. grams·meters per second
D. grams·meters per second squared

Solution.

$$a = \frac{F}{m} \rightarrow F = ma$$

$$[m] = [\, g \,]$$

$$[a] = \left[\frac{m}{s^2}\right]$$

So,

$$[F] = [m] \cdot [a] = \left[\frac{g \cdot m}{s^2}\right]$$

Thus, answer is D. grams·meters per second squared.

Answer.

D. grams·meters per second squared $\left[\frac{g \cdot m}{s^2}\right]$