**Vocabulary: Moment of Inertia**

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**Vocabulary**

* Angular velocity – the angle through which an object rotates in a given time.
  + The symbol for angular velocity is *ω* (omega).
  + Units of angular velocity may be radians per second (rad/s) or degrees per second (°/s).
* Linear velocity – the speed and direction of an object.
  + The symbol for linear velocity is *v*.
  + Linear velocity is also simply called “velocity.”
* Moment of inertia – a measurement of an object’s resistance to changes in rotation.
  + Moment of inertia is represented by the symbol *I*.
  + The SI unit of moment of inertia is the kilogram meter squared (kg⋅m2).
  + Moment of inertia plays the same role in most equations about rotational motion as mass does in equations about linear motion.
* Rotational kinetic energy – kinetic energy due to rotation.
  + Symbols for rotational kinetic energy include *RKE* and *KERot*.
  + For a rotating object, the formula for rotational kinetic energy is:



In this equation, *I* represents moment of inertia and *ω* represents angular velocity.

* Translational kinetic energy – kinetic energy due to linear motion.
  + Symbols for translational kinetic energy include *TKE* and *KETrans*.
  + For a moving object, the formula for translational kinetic energy is:



In this equation, *m* represents mass and *v* represents velocity.