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Kinetic Energy

energy an object exhibits when in motion

$KE = ½m \times v^2$

- measured in Nm or J

Key Tips:

- As velocity increases, so does kinetic energy.

Example

- A 1500kg car is driving 32m/s. What is the kinetic energy of the car?

$KE = ½m \times v^2$

$KE = ½\ 1500 \times 32^2$

$KE = 750 \times 1{,}024$

KE = 768,000 J

- A marathon runner that weighs 53kg runs a marathon at 9m/s. What is the kinetic energy of the marathon runner?

$KE = ½m \times v^2$

$KE = ½\ 53 \times 9^2$

$KE = 26.5 \times 81$

KE = 2,146.5 J

Practice

- A 9kg dog is running across a park at 1.7m/s. What is the kinetic energy of the dog?

- A Great White Shark is swimming in the water at 2.2m/s. If its kinetic energy is 2,633 J, what is its weight?