

Basic Physics Formulas

Here are some basic physics formulas:

Basic Physics Formulas	Concept	Formula
Average Speed Formula	It is used to calculate the average speed (S) of a moving body for the distance covered (D) as well as the time duration (T).	$S = \frac{d}{t}$
Acceleration Formula	Acceleration refers to the rate of change in velocity to the change in time. It is denoted by symbol a.	$a = \frac{v-u}{t}$
Density Formula	This formula depicts the denseness of material in a specific given area.	$P = \frac{m}{V}$
Power Formula	The capacity to perform an activity is known as Energy. On the other hand, energy spent in carrying out an activity (work) for a particular period of time is termed as Power.	$P = \frac{W}{t}$
Newton's Second Law	Using the formula, the force can be expressed by the product of mass and acceleration of the body.	$F = m \times a$
Weight Formula	The formula measures the force with which an object falls due to gravity.	$W = mg$
Pressure Formula	Pressure refers to the amount of force applied per unit area of the object.	$P = \frac{F}{A}$
Ohm's Law Formula	Ohm's law states that the current passing through a conductor material is directly	$V = I \times R$

	proportional to the potential difference between two endpoints of the conductor.	
Kinetic Energy Formula	Kinetic energy is the energy that is possessed by a body due to its state of motion.	$E = \frac{1}{2}mv^2$
Frequency Formula	Frequency refers to the revolutions completed per second or as the number of wave cycles.	$F = \frac{v}{\lambda}$
Pendulum Formula	This equation calculates how long the pendulum takes to swing back and forth in seconds	$T = 2\pi\sqrt{\frac{L}{g}}$
Fahrenheit Formula	This is a conversion formula for a temperature.	$F = (\frac{9}{5} \times ^\circ\text{C}) + 32$
Work Formula	The work formula measures the multiplication of magnitude of displacement d and the component of the force.	$W = F \times d \times \cos\theta$
Torque Formula	Torque is rotational force or turning effect. It measures the magnitude of	$T = F \times r \times \sin\theta$
Displacement Formula	Refers to the change in the object's position from its initial place to its final position.	$D = X_f - X_i = \Delta X$
Mass Formula	This formula represents the relationship between force and mass. Here, F = force, m = mass, and a = acceleration.	$F = ma$ or $m = F/a$

Practice Questions

- The width of a door is 40 cm. If it is released by exerting a force of 2 N at its edge (away from the hinges). Compute the torque produced which causes the door to open.
- A pendulum's length is 4 meters. It completes one full cycle of 0.25 times every second. The maximum displacement that the pendulum bob reaches is 0.1 meters from the

center. Find out the time period of the oscillation? And what is the displacement after 0.6 seconds?

- A pendulum has a period of 1.90 s on Earth. What is its period on Mars, where the acceleration of gravity is about 0.37 that on Earth?
- Let's consider a man is pushing a lawnmower across a yard and the force that he is applying to the handle is angled down at 60° from the horizontal plane. Besides, the force has a magnitude of 900 N. So, if he pushes the mower 30 m. Then calculate the work done by the person to move the lawnmower.
- A wave has a frequency of 50 Hz. It also has a wavelength of 10 m. Find out the speed of the wave?
- Suppose Geeta leaves Delhi to visit Rohit in Delhi. She decides to travel by train and covers 350 kilometers to the north. Then the track turns back to south of 125 kilometers. Calculate Geeta's total displacement using displacement formula?
- A box that weighs 250 N is at rest on the floor. If the pressure exerted by the box on the floor is 25,000 Pa, over what area is the box in contact with the floor?
- The mass of an object happens to be 1 kg. Furthermore, a force of 2 Newton is applied on it. Find out the magnitude and direction of the object's acceleration.
- A person's mass happens to be 70 kg, while the gravity on Earth is 9.8 m/s^2 . Find out the weight of this person?
- Calculate the gravitational force which acts upon two objects of masses 15 g and 15 kg which are 11 m apart?