Solid and fluid mechanics set, curved ramp, digital multichronometer 12 functions, sensor

EQ284A

Function

Intended for experimental study, physics laboratory and carrying out physics experiments on: Kinematics. The range, uncertainty and speed of a horizontal launch. Measuring range. Horizontal projectile launch, measuring initial velocity and determining range. Determination of the final velocity of a projectile launched horizontally. Dynamics. Knowing the fixed pulley, a simple machine. Knowing the movable pulley, a simple machine. Mechanical advantage of the movable pulley. The golden law of mechanics. The exponential hoist, a simple machine. Building an exponential hoist with two elements and a fixed pulley. The mechanical advantage of exponential hoisting. Building an exponential hoist with three elements and a fixed pulley. The parallel notebook, a simple machine. The movable pulley. Building the parallel notebook. The characteristic stretching curve of a helical spring and a rubber belt, elastic hysteresis. Hooke law in a helical spring. Elastic deformation and plastic deformation. The restoring force of the spring and Newton third law. The association of helical springs in series. The elasticity constant resulting from series association. The association of helical springs in parallel. The elasticity constant resulting from the parallel association. Static. Conditions for stable, unstable and indifferent static equilibrium of a supported spherical body. Stable Balance. The force diagram. Indifferent balance. Unstable Balance. Energy Conservation. Mechanical work and mechanical energy in a mass and helical spring system. The work done by the force along the central axis of the spring. Elastic potential energy and kinetic energy (energy of movement). The principle of

conservation of mechanical energy in a mass and helical spring system. Determining the values ¿¿of potential energy, kinetic energy and velocity at a position on the trajectory. The amount of horizontal linear motion of a sphere thrown horizontally. Hydrostatic. Thrust, a quantity with direction, direction and module (value). Measuring forces with the dynamometer. The mass of a body does not change. Weight is a force, a vector quantity that has direction, direction and module (value). The weight of a body can change, it depends on where the body is. The relationship between the apparent decrease in the weight of a body immersed in a liquid and the buoyancy. Determining, by difference, the value of thrust. Archimedes principle. Fluid. The principle of the impenetrability of matter. The Buoyancy value depends on the weight of the fluid displaced. Wave. The simple pendulum. The period and frequency of the pendulum. The law of masses and pendular substances. The law of pendulum lengths. Observing the oscillating movement of mass in a mass and helical spring system. Mass-spring system and simple harmonic motion (MHS). The dynamic determination of the elastic constant in a mass and oscillating helical spring system, the MHS. Measuring the weight and calculating the mass value, disregarding the mass of the spring. The MHS performed by the mass and oscillating spring system. Care to reduce the damping effect. Dynamic determination of the elastic constant disregarding the mass of the spring. Measuring the MHS period. The value of the spring elasticity constant. Dynamic determination of the elastic constant considering the mass of the spring, movement in two dimensions, etc.

Knowledge areas

Physics

Key Experiments

The reach of a projectile horizontal launch
The mechanical advantage of the fixed pulley
The mechanical advantage of the movable pulley
The experimental determination of the mechanical advantage of the parallel block and tackle system
The calibration of a rubber belt, the calibration of a coil spring, the elastic hysteresis
General conditions of static equilibrium for a supported rigid spherical body