

Physics holiday homework

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Physics holiday homework Applications of Newton's laws of motion Newton's laws of motion are three physical laws that form the basis for classical mechanics. They describe the relationship between the forces acting on a body and its motion due to those forces. They have been expressed in several different ways over nearly three centuries, and can be summarized as follows:

- 1- The first law states that an object continues in its state of rest or uniform motion in a straight line unless compelled by an external unbalanced force. Since law defines inertia, it is also known as the law of inertia.
- 2- The second law states that the rate of change of momentum of an object is proportional to the force applied and moves in the direction of force.
- 3- The third law states that every action has an equal and opposite reaction and acts on different bodies.

Applications of Newton's laws of motion

Newton's first law of motion

- 1- Seat belts exert force on our body to make the forward motion slower. An opposite experience is encountered when we are standing in a bus or a train and the it moves suddenly. We tend to fall backwards. This because the sudden start of the bus brings motion to the bus as well as to our feet in contact.
- 2- When a motor car makes a sharp turn at a high speed, we tend to slip or thrown to one side.

Newton's second law of motion

- 1- a cricket player pulls back his hands to catch a fast moving ball. In doing so, the fielder increases the time during which the high velocity of the ball decreases to zero and thus, the fielder does not get hurt.
- 2- in a high jump athlete events, the athletes are made to jump on a cushion bed or on a sand bed.

Newton's third law of motion

- 1- When a bullet is fired from a gun, the force sending the bullet forward is equal to the force the gun backwards. This is because every action has an equal and opposite reaction.