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CQ4

1. What is the relationship between weight and mass? Which is an intrinsic, unchanging property of a body?

Mass is the measure of amount of matter in an object. Weight is the product of mass and acceleration due to gravity. Mass is the intrinsic inertia of an object. Unlike weight, mass does not vary with location. Weight depends on the acceleration due to gravity; the weight of an object can change when the object enters a region with stronger or weaker gravity. The mass of an object is the same on Earth, in orbit, or on the surface of the Moon. Weight is not an intrinsic property because weight in Earth is not equal to weight in moon. Weight is a changing property for a body.

2. If a constant, nonzero force is applied to an object, what can you say about the velocity and acceleration of the object?

Newtons second law states that if a nonzero act on an object it accelerates. If an object is moving at a certain velocity and a certain direction, then a constant non-zero force is applied to that object in some direction. The object will start to accelerate in the direction the non-zero force is applied. Velocity of the object will be changing, and acceleration is nonzero.