FRAME OF REFERENCE

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DEPARTMENT OF PHYSICS
MECHANICS 1 –FIRST SEMESTER
2021

FRAMES OF REFERENCE

- The frame relative to which the position or the motion of a body is specified is called the frame of reference. The position of other objects is specified relative to the frame of reference being assumed to be connected with a rigid body. For this, a convenient point is chosen as the position vector of the body from the origin. Generally, the observer is considered to be coinciding with the origin.
- The frame of reference are of two kinds:
- 1) Inertial frames of reference.
- 2)Non-inertial frames of reference.

INERTIAL FRAMES OF REFERENCE

- The frames of reference in which the Newton's law holds, are called the inertial frames. According to Newton's law, a body not acted upon by any external force, has an uncelebrated motion.
- In other words, if the body is at rest, it remains at rest, but if it is in motion, it remains moving with the same speed in the same direction unless an external force is applied.
- Example: If no external force acts on a body, its acceleration remains zero.

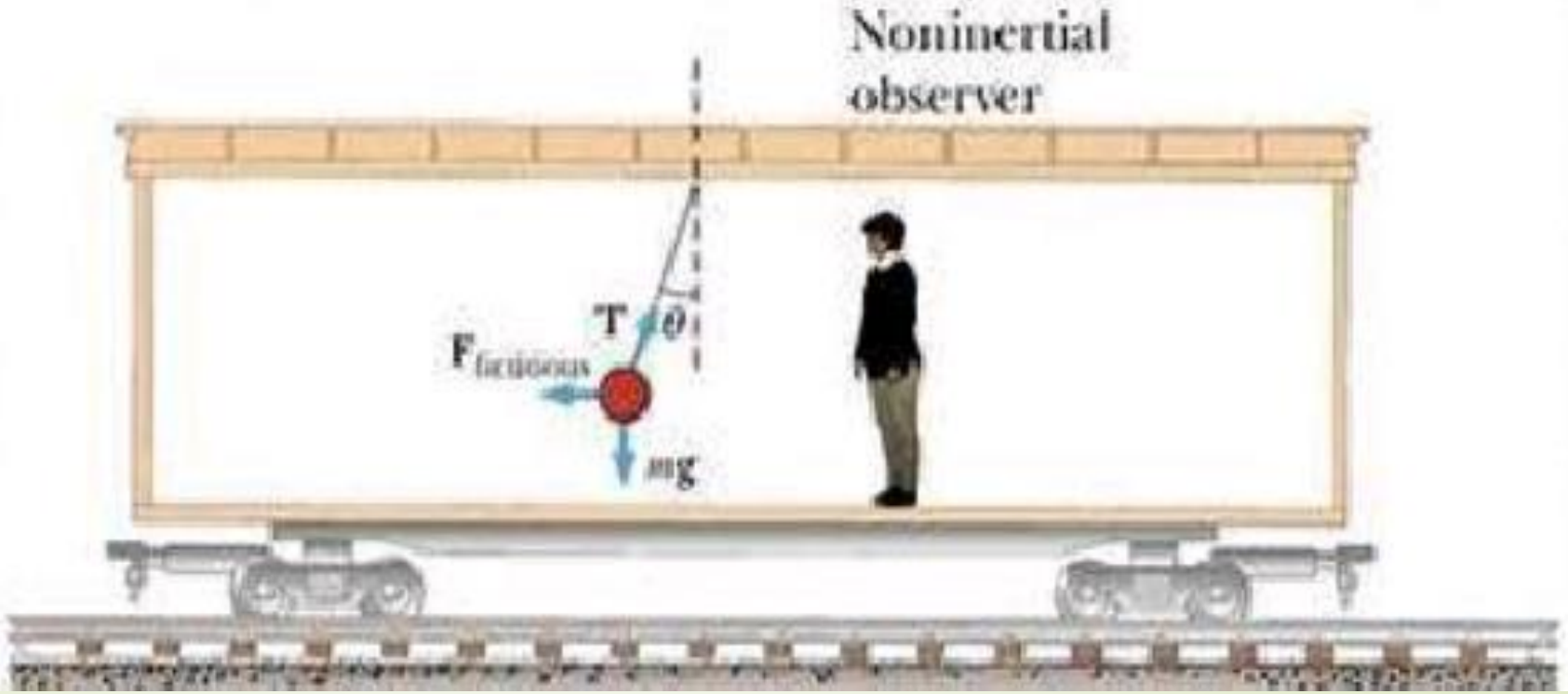
Frame of Reference

- Motion of an object in relation to a fixed body or place.
- To describe motion accurately and completely
- THE MOST COMMON FRAME OF REFERENCE: The Earth

- An observer in each inertial frame has the same description of physical events. In other words the frame S and S' are said to be inertial only if the acceleration of a body measured by the observers in both frames is same.

Similarly, if a body is moving with some acceleration relative to the observer in the frame S, the body will have the same acceleration relative to the observer in the frame S'. Thus, all those frames of reference which are either stationary relative to each other or are in uniform motion are called the inertial frames provided that one of these frames is inertial.

- The frames of reference in which Newton's laws are not valid, are called the non-inertial frames. All the accelerated and rotating frames are non- inertial. Since our earth rotates around its own axis, it is a non-inertial frames.



THANKYOU