

4-2)

A passenger on a train sees a ball of mass m hanging from a string tied to the ceiling. To the passenger, the ball appears motionless.

Draw a free body diagram for the ball for these three situations:

- a) The train is motionless at the station.
- b) The train is moving with constant velocity down a set of straight level tracks.
- c) The train is accelerating down the straight level tracks.
- d) For part (c), find the relationship between the angle the string makes with the vertical and the acceleration.