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PH105 / LeClair

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Quiz 4: Force

1. You are in a plane accelerating down a runway during takeoff, and you are holding a pendulum (say, a shoe hanging from a shoelace). The string of the pendulum:
 - hangs straight downward
 - hangs downward and forward, because the net force on the pendulum must be zero
 - hangs downward and forward, because the net force must be nonzero
 - hangs downward and backward, because the net force must be zero
 - hangs downward and backward, because the net force must be nonzero
2. Two people pull on opposite ends of a rope, each with force F . The tension in the rope is: (*Hint - would it change if one person were removed and that end of the string tied to a wall?*)
 - $F/2$
 - F
 - $2F$
3. The static friction force between a car's tires and the ground can do all of the following *except*:
 - speed the car up
 - slow the car down
 - change the car's direction
 - it can do all of the above things
4. When you *stand at rest* on a floor, you exert a downward normal force on the floor. Does this force cause the earth to accelerate in the downward direction?
 - Yes, but the earth is very massive, so you don't notice the motion
 - Yes, but you accelerate along with the earth, so you don't notice the motion
 - No, because the normal force isn't a real force
 - No, because you are also pulling on the earth gravitationally
 - No, because there is also friction at your feet.