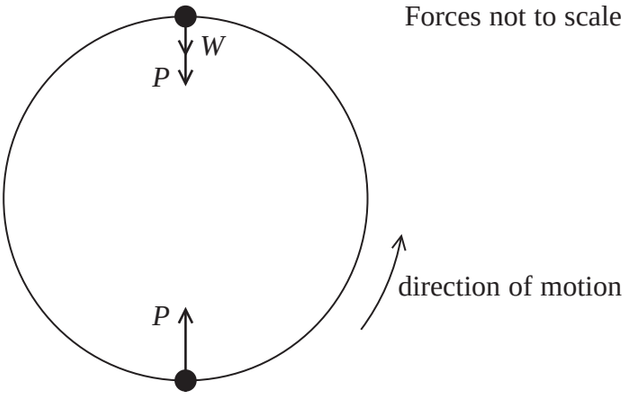
**6** The Enterprise is an amusement park ride. Riders sit in cars that are made to rotate in a vertical circle.

The ride starts by moving in a horizontal circle. The speed of rotation increases, and the frame tilts until the ride is rotating vertically as shown.

The photograph below shows riders at the top of the vertical circle. The riders are in contact with their seats at all times during the ride.

The diagram shows the weight $W$ of a rider and the push $P$ from the seat on the rider at the top and bottom of the circular path.




*(a) The rider moves from the bottom to the top of the circular path.

Explain how the apparent weight experienced by the rider would change.

**(6)**

(b) On the website of the amusement park it states

"The ride is perfectly safe without the need for safety harnesses for the riders. Centrifugal force ensures that the riders remain in their seats at all stages in the ride."

Assess the validity of this statement.

**(4)**

**(Total for Question 6 = 10 marks)**