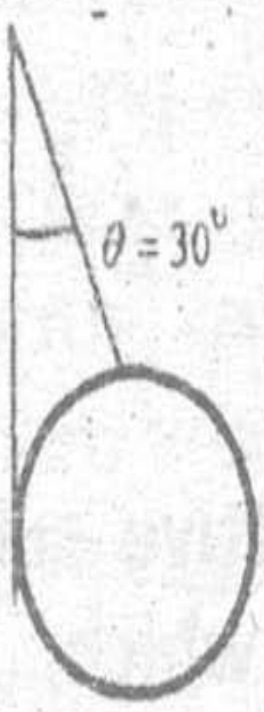
(iii) A uniform sphere of weight 10N is held by a string attached to a frictionless wall so that the string makes an angle of 30° with the wall as shown in figure. Find the tension in the string and the force exerted on the sphere by the wall.



(iv) Find the angle between two forces of equal magnitudes when the magnitude of their resultant is also equal to the magnitudes of either of these forces.

(v) Find the angle of projection for which its maximum height (Vertical range) achieved and horizontal range of projectile are equal?

(vi) A truck weighing 2500 kg and moving with a velocity of 21 m/s collides with stationary car weighing 1000 kg. The truck and the car move together after the impact. Calculate their common velocity.

(vii) How large a force is required to accelerate an object from rest to a speed of $2\times10^{7} m/s$ through a distance of 5cm, while the mass of electron is 9.1×10^{-31} kg?

(viii) A disc and hoop start moving down from the top of an inclined plane at the same time. Which one will be moving faster on reaching the bottom and Why? (Justify your answer by using mathematical equations)