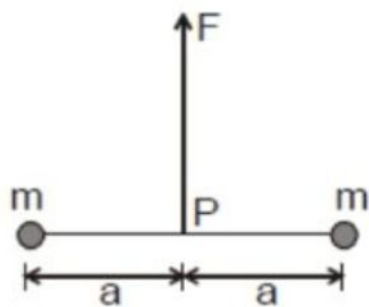
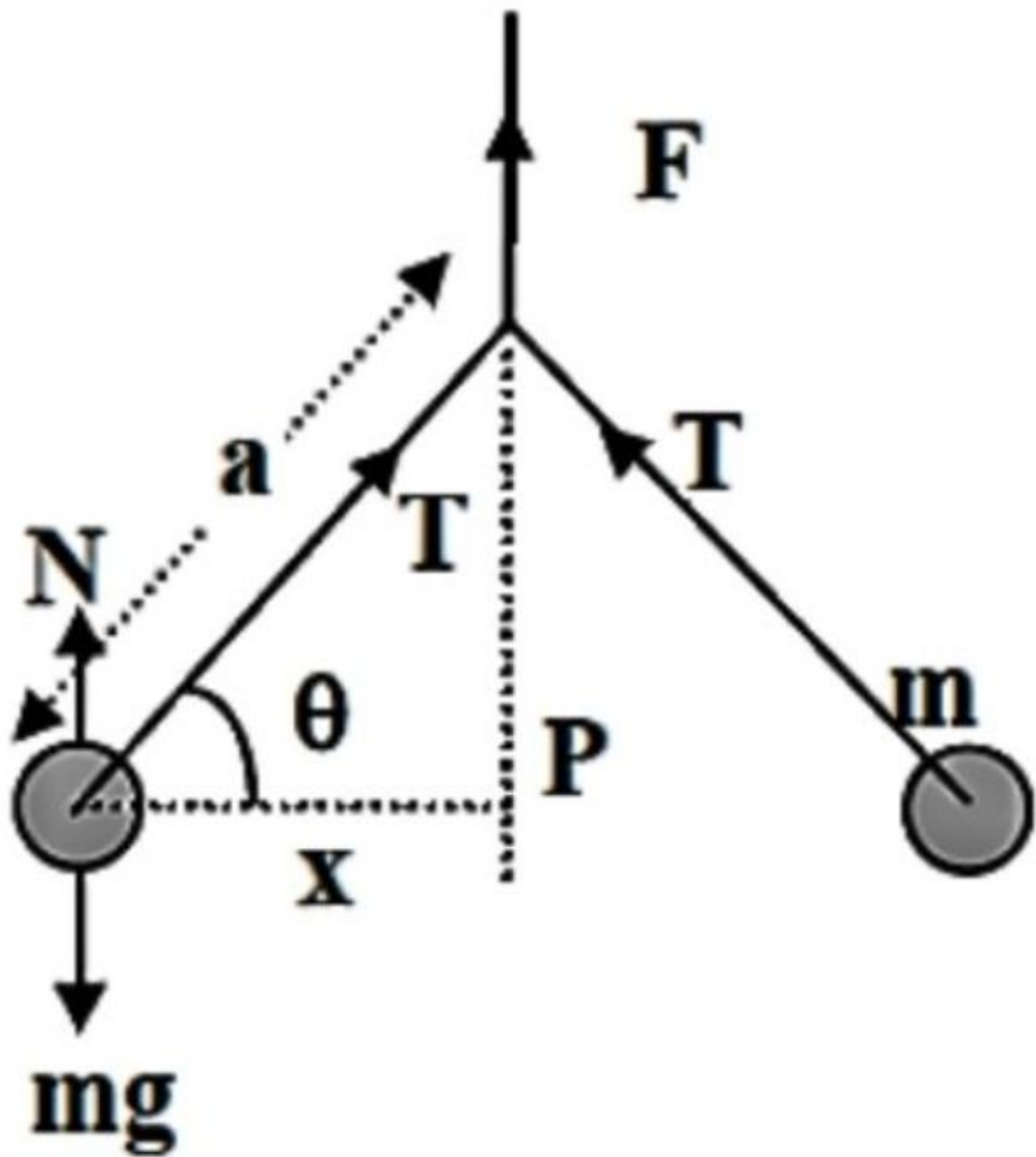


Two particles of mass m each are tied at the ends of a light string of length $2a$. The whole system is kept on a frictionless horizontal surface with the string held tight so that each mass is at a distance ' a ' from the centre P (as shown in the figure). Now, the mid-point of the string is pulled vertically upwards with a small but constant force F . As a result, the particles move towards each other on the surface. The magnitude of acceleration, when the separation between them becomes $2x$, is



- (A) $\frac{F}{2m} \frac{a}{\sqrt{a^2 - x^2}}$ (B) $\frac{F}{2m} \frac{x}{\sqrt{a^2 - x^2}}$
- (C) $\frac{F}{2m} \frac{x}{a}$ (D) $\frac{F}{2m} \frac{\sqrt{a^2 - x^2}}{x}$



$$2T \sin \theta = F$$

$$T \cos \theta = mA$$

$$2 \tan \theta = \frac{F}{mA}$$

$$A = \frac{F}{2m} \left(\frac{x}{\sqrt{a^2 - x^2}} \right)$$