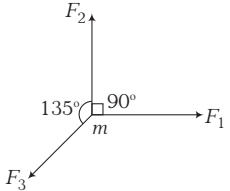
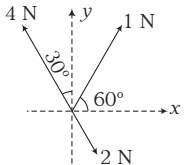
**13.** When a force $F$ acts on a body of mass $m$, the acceleration produced in the body is $a$. If three equal forces $F_1 = F_2 = F_3 = F$ act on the same body as shown in figure. The acceleration produced is




(a) $(\sqrt{2}-1)\,a$ (b) $(\sqrt{2}+1)\,a$ (c) $\sqrt{2}\,a$ (d) $a$

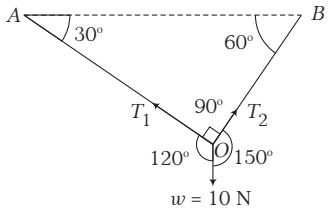
**14.** Three forces acting on a body are shown in the figure. To have the resultant force only along the $y$-direction, the magnitude of the minimum additional force needed is




(a) 0.5 N (b) 1.5 N

(c) $\frac{\sqrt{3}}{4}$ N (d) $\sqrt{3}$ N

**15.** A ball of mass 1 kg hangs in equilibrium from two strings $OA$ and $OB$ as shown in figure. What are the tensions in strings $OA$ and $OB$ ? (Take, $g = 10\ \text{ms}^{-2}$)




(a) 5 N, 5 N

(b) $5\sqrt{3}$ N, $5\sqrt{3}$ N

(c) 5 N, $5\sqrt{3}$ N

(d) $5\sqrt{3}$ N, 5N