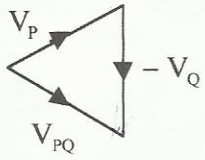
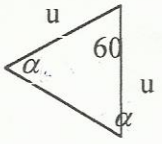
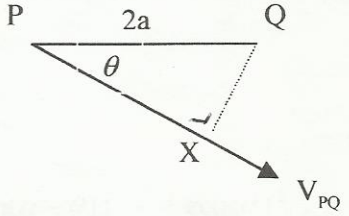
7000

2 cont.







$$\vec{V}_{PQ} = \vec{V}_P - \vec{V}_Q$$

$\alpha = 60° \Rightarrow \theta = 30°$ 5

shortest distance $= 2a\sin\theta = a$ 5

time to reach X $= t = \dfrac{2a\cos\theta}{V_{PQ}} = \dfrac{a\sqrt{3}}{u}$ 5

Distance moved by P $= 2u\left(\dfrac{T}{2}\right) + ut = \dfrac{4a}{\sqrt{3}} + a\sqrt{3} = \dfrac{7a}{\sqrt{3}}$ 5

Distance moved by Q $= u\left(\dfrac{T}{2}\right) + ut = \dfrac{2a}{\sqrt{3}} + a\sqrt{3} = \dfrac{5a}{\sqrt{3}}$ 5

50