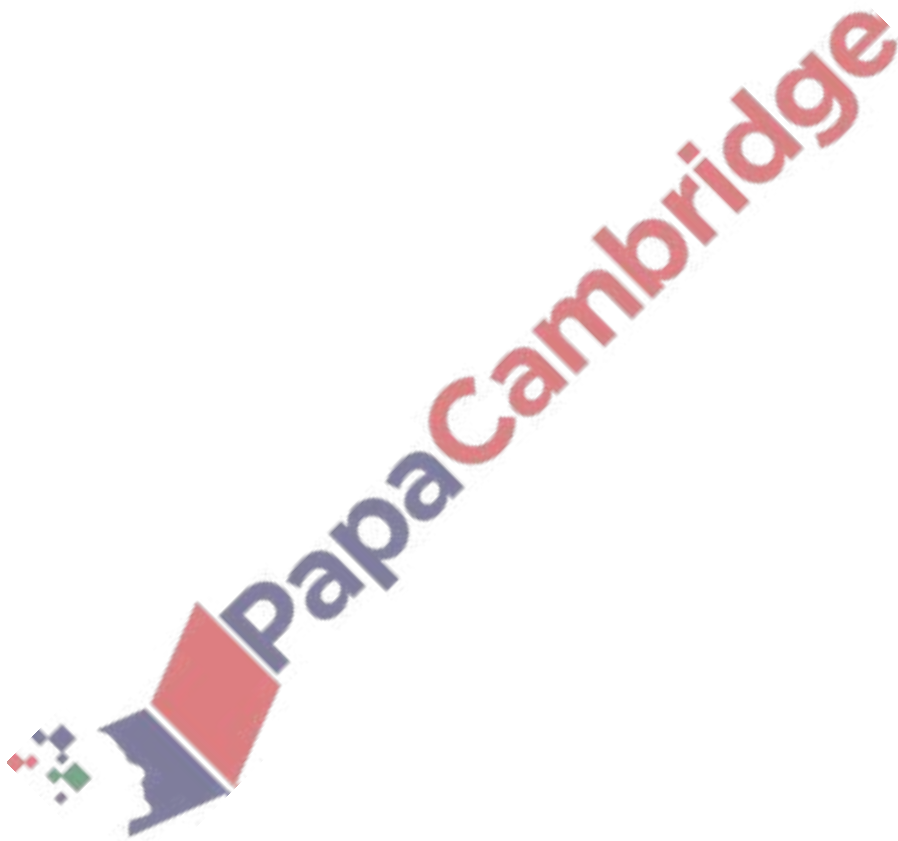


Trigonometry – 2021 A2

1. June/2021/Paper_9709/21/No.2

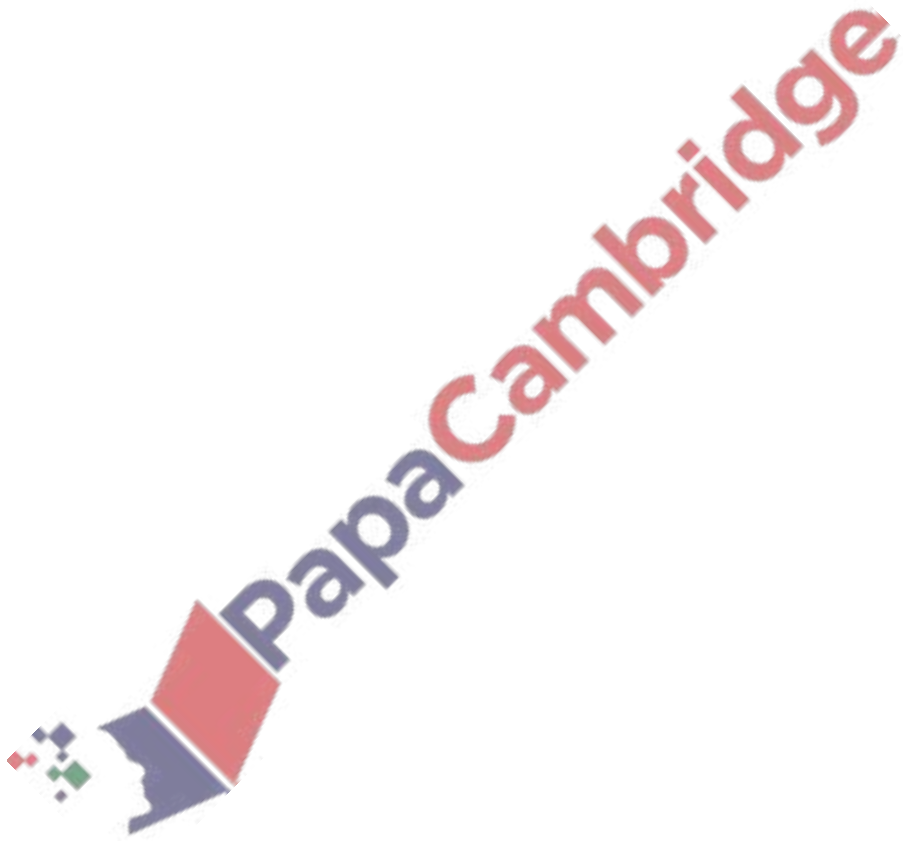
By first expanding $\sin(\theta + 30^\circ)$, solve the equation $\sin(\theta + 30^\circ) \operatorname{cosec} \theta = 2$ for $0^\circ < \theta < 360^\circ$. [6]



2. June/2021/Paper_9709/22/No.3

Solve the equation $\sin(2\theta + 30^\circ) = 5 \cos(2\theta + 60^\circ)$ for $0^\circ < \theta < 180^\circ$.

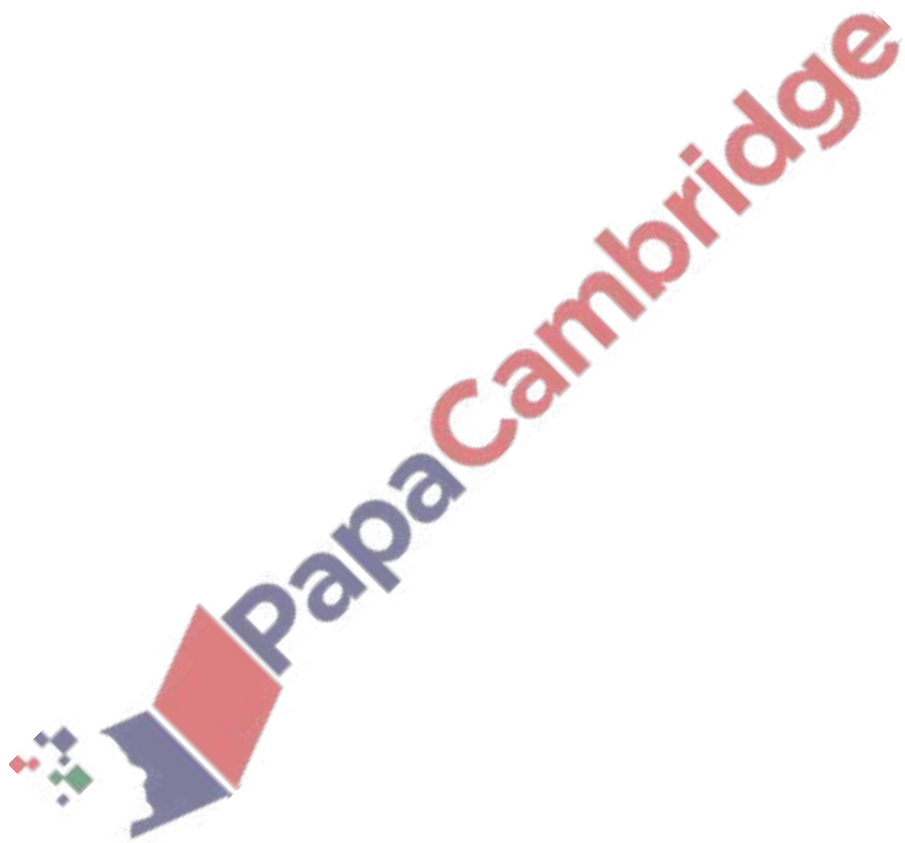
[6]



3. March/2021/Paper_9709/22/No.2

Solve the equation $\sec^2 \theta \cot \theta = 8$ for $0 < \theta < \pi$.

[5]



(a) Express $5\sqrt{3}\cos x + 5\sin x$ in the form $R\cos(x - \alpha)$, where $R > 0$ and $0 < \alpha < \frac{1}{2}\pi$. [3]

(b) As x varies, find the least possible value of

$$4 + 5\sqrt{3}\cos x + 5\sin x,$$

and determine the corresponding value of x where $-\pi < x < \pi$. [3]

