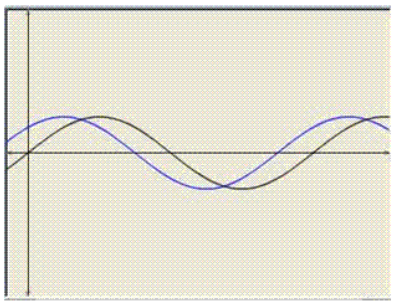
Chapter 6 Graphs of Trigonometric Functions Ex 6.1 Q2



We have,

$$y = \sin\left(x + \frac{\pi}{4}\right)$$

$$\Rightarrow \quad y - 0 = \sin\left(x + \frac{\pi}{4}\right) \qquad \text{---(i)}$$

Shifting the origin at $\left(-\frac{\pi}{4}, 0\right)$, we obtain

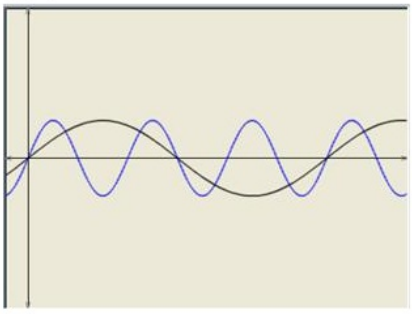
$$x = X - \frac{\pi}{4}, \; y = Y + 0$$

Substituting these values in (i), we get

$$Y = \sin X.$$

Thus we draw the graph of $Y = \sin X$ and shift it by $\frac{\pi}{4}$ to the left to get the required graph.

To obtain the graph of $y = \sin 3x$ we first draw the graph of $y = \sin x$ in the interval $[0, 2\pi]$ and then divide the x-coordinates of the points where it crosses x-axis by 3.



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