



## Chapter 6 Graphs of Trigonometric Functions Ex 6.2 Q1

We have,

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

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

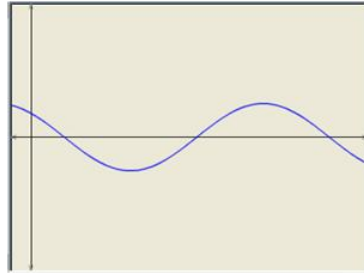
Shifting the origin at  $\left(-\frac{\pi}{4}, 0\right)$ , we obtain

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

Substituting these values in (i), we get

$$Y = \cos X.$$

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



We have,

$$y = \cos\left(x - \frac{\pi}{4}\right)$$

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

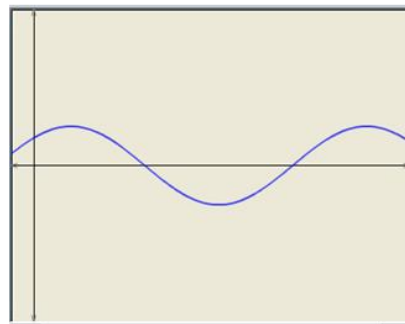
Shifting the origin at  $\left(\frac{\pi}{4}, 0\right)$ , we obtain

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

Substituting these values in (i), we get

$$Y = \cos X.$$

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



We have,

$$y = 3 \cos(2x - 1)$$

$$\Rightarrow (y - 0) = 3 \cos 2 \left( x - \frac{1}{2} \right)$$

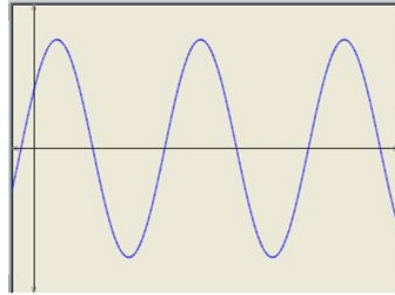
Shifting the origin at  $\left( \frac{1}{2}, 0 \right)$ , we have

$$x = X + \frac{1}{3} \text{ and } y = Y + 0$$

Substituting these values in (i), we get

$$Y = 3 \cos 2X$$

Thus we draw the graph of  $Y = 3 \cos 2X$  and shift it by  $1/2$  to the right to get the required graph.



We have,

$$y = 2 \cos \left( x - \frac{\pi}{2} \right)$$

$$\Rightarrow y - 0 = 2 \cos \left( x - \frac{\pi}{2} \right) \quad \text{---(i)}$$

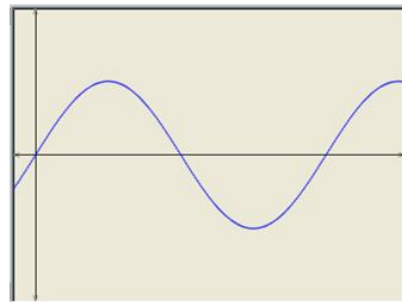
Shifting the origin at  $\left( \frac{\pi}{2}, 0 \right)$ , we obtain

$$x = X + \frac{\pi}{2}, y = Y + 0$$

Substituting these values in (i), we get

$$Y = 2 \cos X.$$

Thus we draw the graph of  $Y = 2 \cos X$  and shift it by  $\frac{\pi}{2}$  to the right to get the required graph.



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