Chapter 6 Graphs of Trigonometric Functions Ex 6.2 Q1

We have,

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

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

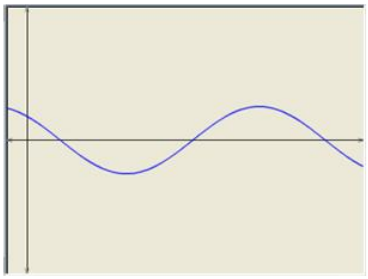
Shifting the origin at $\left(-\frac{\pi}{4}, 0\right)$, we obtain

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

Substituting these values in (i), we get

$$Y = \cos X.$$

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,

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

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

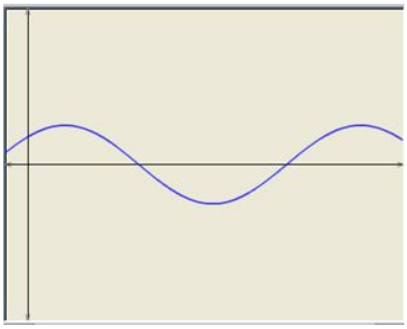
Shifting the origin at $\left(\frac{\pi}{4}, 0\right)$, we obtain

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

Substituting these values in (i), we get

$$Y = \cos X.$$

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,

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

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

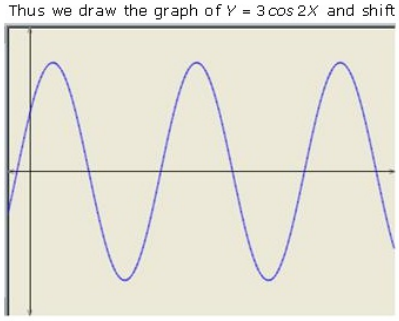
Shifting the origin at $\left(\frac{1}{2}, 0\right)$, we have

$x = X + \frac{1}{3}$ 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,

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

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

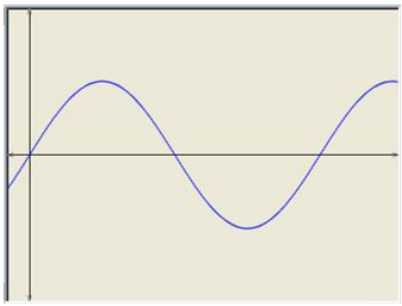
Shifting the origin at $\left(\frac{\pi}{2}, 0\right)$, we obtain

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

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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