

RD Sharma
Solutions
Class 11 Maths
Chapter 6
Ex 6.2

Chapter 6 Graphs of Trigonometric Functions Ex 6.2 Q1

We have,

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

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

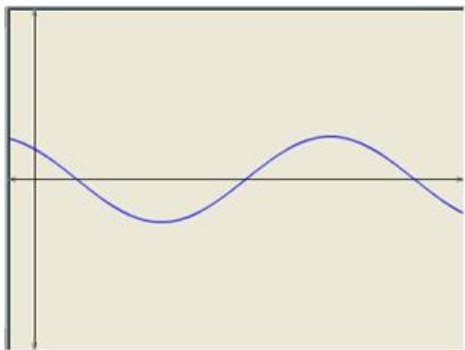
Shifting the origin at $\left(-\frac{\pi}{4}, 0\right)$, we obtain

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

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,

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

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

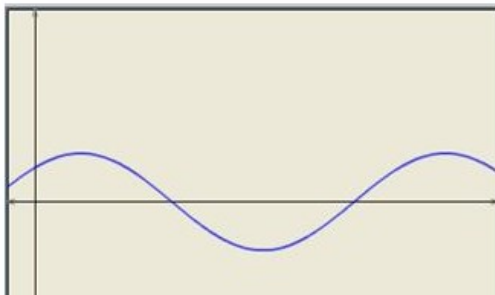
Shifting the origin at $\left(\frac{\pi}{4}, 0\right)$, we obtain

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

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,

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

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

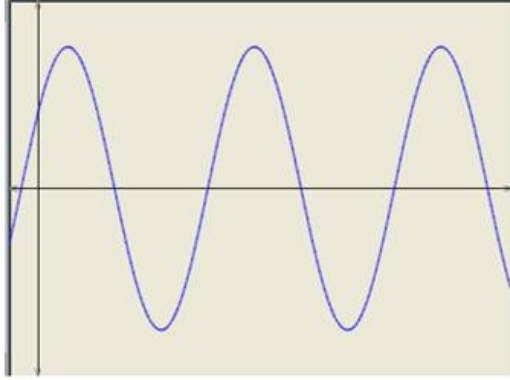
Shifting the origin at $\left(\frac{1}{2}, 0 \right)$, we have

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

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,

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

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

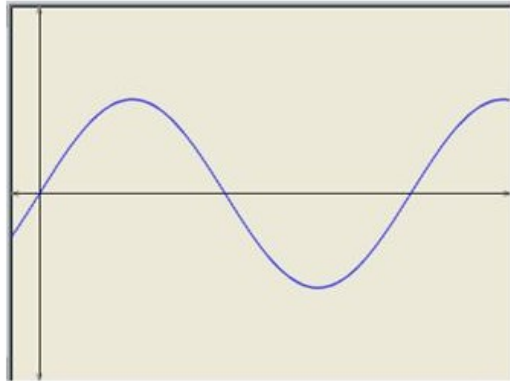
Shifting the origin at $\left(\frac{\pi}{2}, 0 \right)$, we obtain

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

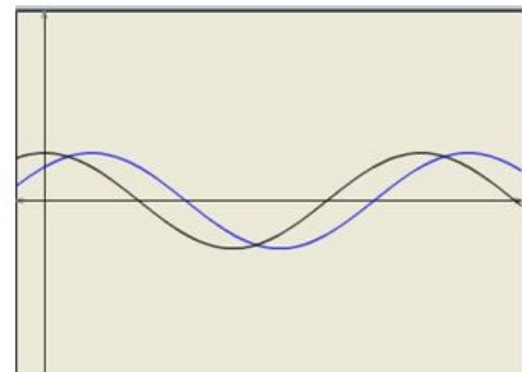
Substituting these values in (i), we get

$$Y = 2 \cos X.$$

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.



Chapter 6 Graphs of Trigonometric Functions Ex 6.2 Q2



We have,

$$y = \cos 2\left(x - \frac{\pi}{4}\right)$$

$$\Rightarrow y - 0 = \cos 2\left(x - \frac{\pi}{4}\right) \quad \text{---(i)}$$

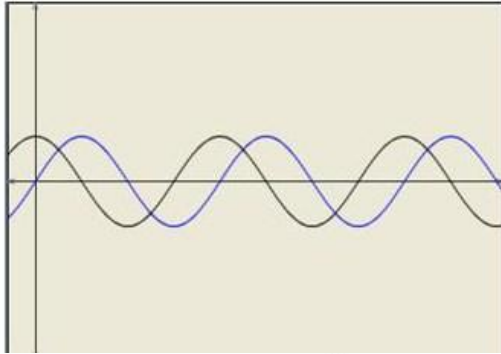
Shifting the origin at $\left(\frac{\pi}{4}, 0\right)$, we obtain

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

Substituting these values in (i), we get

$$Y = \cos 2X.$$

Thus we draw the graph of $Y = \cos 2X$ and shift it by $\frac{\pi}{4}$ to the right to get the required graph.



To obtain the graph of $y = \cos \frac{x}{2}$ we first draw the graph of $y = \cos x$ in the interval $[0, 2\pi]$ and then divide the x-coordinates of the points where it crosses x-axis by 1/2.

