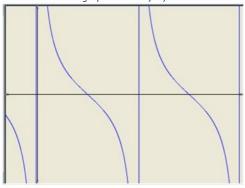


Chapter 6 Graphs of Trigonometric Functions Ex 6.3 Q6

To obtain the graph of $y = 2 \cot 2x$ we first draw the graph of $y = \cot x$ in the interval $(0,\pi)$ and then divide the x-coordinates of the points where it crosses x-axis by 2. We then stretch the graph vertically by a factor of 2.



Chapter 6 Graphs of Trigonometric Functions Ex 6.3 Q7

$$y = \cos 2\left(x - \frac{\pi}{6}\right)$$

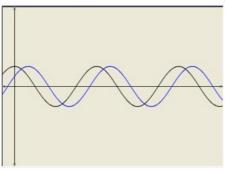
$$\Rightarrow y - 0 = \cos 2\left(x - \frac{\pi}{6}\right) \qquad ---(i)$$

Shifting the origin at $\left(\frac{\pi}{6},0\right)$, we obtain

$$X = X + \frac{\pi}{6}, \ y = Y + 0$$

 $X=X+\frac{\pi}{6}\,,\;y=Y+0$ Substituting these values in (i), we get $Y=\cos2X.$

Thus we draw the graph of $Y=\cos 2X$ and shift it by $\frac{\pi}{6}$ to the right to get the required graph.



Chapter 6 Graphs of Trigonometric Functions Ex 6.3 Q8

We know that

$$y = \sin^2 x = \frac{1 - \cos 2x}{2} = \frac{1}{2} - \frac{1}{2} \cos 2x$$

We have,
$$y = \frac{1}{2} - \frac{1}{2} \cos 2x$$

$$\Rightarrow y - \frac{1}{2} = -\frac{1}{2} \cos 2x \qquad ---(i)$$
 Shifting the origin at $\left(0, -\frac{1}{2}\right)$, we obtain

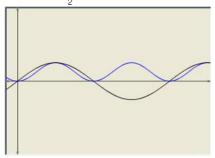
Shifting the origin at
$$\left(0, -\frac{1}{2}\right)$$
, we obtain

$$X = X, y = Y + \frac{1}{2}$$

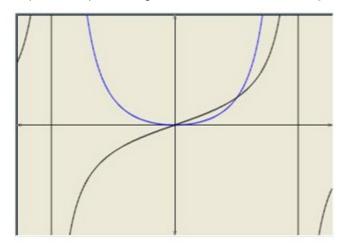
Substituting these values in (i), we get $Y = -\frac{1}{2}\cos 2X.$

$$Y = -\frac{1}{2}\cos 2X.$$

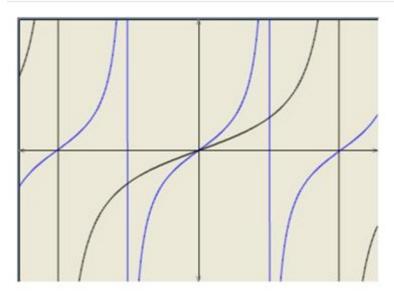
Thus we draw the graph of $Y = \cos 2X$, adjust the maximum and minimum values to 1/2 and -1/2 and shift it by $\frac{1}{2}$ up to get the required graph.



Chapter 6 Graphs of Trigonometric Functions Ex 6.3 Q9



Chapter 6 Graphs of Trigonometric Functions Ex 6.3 Q10



********* END *******