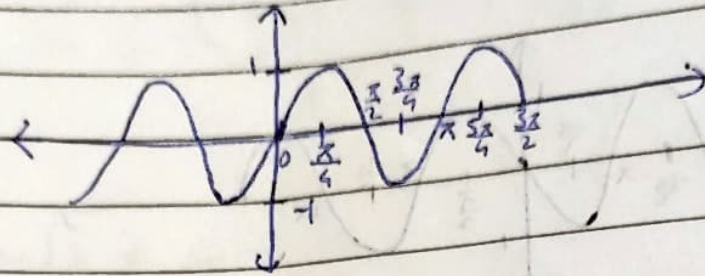


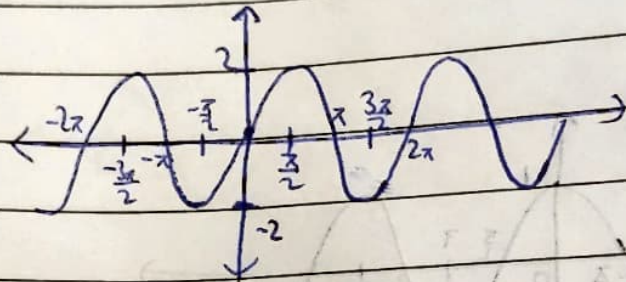
Q1) Draw the graphs of -

- a) $\sin(2x)$ b) $2\sin x$ c) $\cos - \sin x$ d) $-\cos x$

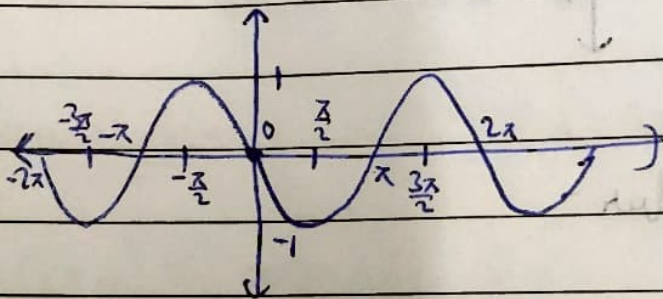
Ans) a)



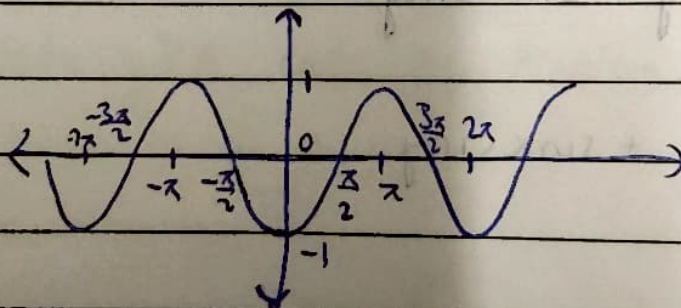
b)



c)



d)



Q2) Find the value of following :-

a) $\sin(75^\circ)$ b) $\sin(-15^\circ)$ c) $\cos(135^\circ)$ d) $\cos(-75^\circ)$

Ans) a) $\sin(75^\circ) = \sin(30^\circ + 45^\circ) = \sin(30^\circ)\cos(45^\circ) + \cos(30^\circ)\sin(45^\circ)$
 $= \frac{1}{2} \times \frac{1}{\sqrt{2}} + \frac{\sqrt{3}}{2} \times \frac{1}{\sqrt{2}}$
 $= \frac{\sqrt{3} + 1}{2\sqrt{2}}$

b) $\sin(-15^\circ) = -\sin(15^\circ) = -\sin(45^\circ - 30^\circ)$
 $= -(\sin(45^\circ)\cos(30^\circ) - \cos(45^\circ)\sin(30^\circ))$
 $= -\left(\frac{1}{\sqrt{2}} \times \frac{\sqrt{3}}{2} - \frac{1}{\sqrt{2}} \times \frac{1}{2}\right)$
 $= \frac{1 - \sqrt{3}}{2\sqrt{2}}$

c) $\cos(135^\circ) = \cos(180^\circ - 45^\circ) = -\cos(45^\circ)$
 $= -\cos(45^\circ)$
 $= -\cos(45^\circ - 30^\circ)$
 $= -(\cos(45^\circ)\cos(30^\circ) + \sin(45^\circ)\sin(30^\circ))$
 $= -\left(\frac{1}{\sqrt{2}} \times \frac{\sqrt{3}}{2} + \frac{1}{\sqrt{2}} \times \frac{1}{2}\right)$
 $= -\left(\frac{\sqrt{3} + 1}{2\sqrt{2}}\right)$

d) $\cos(-75^\circ) = \cos(75^\circ) = \cos(90^\circ - 15^\circ) = \sin(15^\circ)$
 $= \sin(45^\circ - 30^\circ)$
 $= \frac{\sqrt{3} - 1}{2\sqrt{2}}$