

## CHAPTER 3 – TRIGONOMETRY

### Focus Area Based Questions

1. Prove that  $\frac{\cos 9x - \cos 5x}{\sin 17x - \sin 3x} = -\frac{\sin 2x}{\cos 10x}$
2. Find the value of  $\sin 75^\circ$
3. a)  $\sin 765^\circ = \dots\dots\dots$   
 b)  $\frac{\cos 7x + \cos 5x}{\sin 7x - \sin 5x} = \cot x$   
 c)  $\sin(\pi - x) = \dots\dots\dots$
4. a)  $\sin 405^\circ = \dots\dots\dots$   
 b) If  $\sin x = \frac{3}{5}$ ,  $x$  lies in the second quadrant. Find the values  $\cos x$ ,  $\sec x$ ,  $\tan x$  and  $\cot x$ .
5. a)  $\sin 225^\circ = \dots\dots\dots$   
 b) If  $\tan x = \frac{1}{2}$  and  $x$  is in the third quadrant, find  $\sin x$  and  $\cos x$ .  
 c) Prove that  $\frac{\cos 3x + \cos 7x - \cos 2x}{\sin 7x - \sin 3x - \sin 2x} = \cot 2x$ .
6. Expand  $\cos(x+y)$  and hence prove  $\cos 2x = 1 - 2\sin^2 x$ .
7. a) If  $\cos x = -\frac{1}{2}$ ,  $x$  lies in the third quadrant, find  $\sin x$  and  $\tan x$ .  
 b) Prove that  $\frac{\sin 5x + \sin 3x}{\cos 5x + \cos 3x} = \tan 4x$ .

8. a) Find the value of  $\sin \frac{31\pi}{3}$

b) Prove that  $\frac{\sin 5x - 2 \sin 3x + \sin x}{\cos 5x - \cos x} = \tan x$ .

9. Show that :  $\sin(40^\circ + x) \cos(10^\circ + x) - \cos(40^\circ + x) \sin(10^\circ + x) = \frac{1}{2}$

10. Show that  $\tan x \tan 2x \tan 3x = \tan 3x - \tan 2x - \tan x$ .

**FOCUS AREA TRIGONOMETRIC FUNCTIONS VIDEO LINK:**  
<https://youtu.be/7TAZismDopY>