

**XI Maths Worksheet**

Time: 60 min

**Chapter#3 : Trigonometric Functions**

Full Marks:

- Q.1 **If  $\tan A = \sqrt{3}$ , then what is  $\tan 2A$ ?**
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- Q.2 Solve :  $2 \cos^2 x + 3 \sin x = 0$
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- Q.3 Evaluate :  $\sin(40^\circ + \theta)\cos(10^\circ + \theta) - \cos(40^\circ + \theta)\sin(10^\circ + \theta)$
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- Q.4 Prove that  $\cot x \cot 2x - \cot 2x \cot 3x - \cot 3x \cot x = 1$ . (3 marks)
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- Q.5 Find the value of  $\sin 150^\circ + \cos 300^\circ$ .
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- Q.6 If in two circles, arcs of the same length subtend angles  $75^\circ$  and  $120^\circ$  at the centre, find the ratio of their radii.
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- Q.7 If in two circles, arcs of same length, subtend angles  $120^\circ$  and  $150^\circ$  at the centre, find the ratio of their radii. (3 marks)
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- Q.8 Write the value of  $\tan 15^\circ$ .
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- Q.9 Prove that :  
 **$(\cos x + \cos y)^2 + (\sin x - \sin y)^2 = 4 \cos^2 \frac{x+y}{2}$**
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- Q.10 Find the value of  $\cos 55^\circ + \cos 125^\circ + \cos 300^\circ$ .
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- Q.11 Find the value of  $\sin 15^\circ$ .
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- Q.12 Prove that:  $(\sin 3x + \sin x) \sin x + (\cos 3x - \cos x) \cos x = 0$ . (3 marks)
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- Q.13 A wheel makes 360 revolutions in one minute. Through how many radians does it turn in one second? (1 mark)
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- Q.14  **$\frac{\cos 19^\circ - \sin 19^\circ}{\cos 19^\circ + \sin 19^\circ} = \cot 74^\circ$**   
Prove that  **$\frac{\cos 19^\circ - \sin 19^\circ}{\cos 19^\circ + \sin 19^\circ} = \cot 74^\circ$**  (3 marks)
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- Q.15 If  $\cot 2A = \tan(n - 2)A$ , then what is A?
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- Q.16 Solve  $\cos 2\theta - \cos \theta = 0$  (3 marks)
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- Q.17 **Write the general solution of  $\cos x = \frac{1}{2}$**
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- Q.18 Prove that  
 **$\frac{\sec 8\theta - 1}{\sec 4\theta - 1} = \frac{\tan 8\theta}{\tan 2\theta}$**
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- Q.19 Prove that  $\cos^2 A + \cos^2 B - 2 \cos A \cos B \cos (A+B) = \sin^2 (A+B)$
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- Q.20 **Find the principal solutions of the equation  $\tan x = \sqrt{3}$ .**
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