

CLASS 11

MATHS

EXTRA QUESTIONS

Class 11 Maths Chapter 3 Trigonometric Functions – Extra Questions with Answers

Extra practice questions for Class 11 Maths Chapter 3 (Trigonometric Functions), beyond the textbook. These Class 11 Maths Chapter 3 important questions are handy for last-minute exam practice.

Contents

Very Short Answer Questions (1 mark)

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Class 11 Maths Chapter 3 – Solutions and Notes

Extra practice questions for Class 11 Maths Chapter 3 (Trigonometric Functions), beyond the textbook. These Class 11 Maths Chapter 3 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Convert 60° to radians.

Ans: $60 \times \pi/180 = \pi/3$.

Q2. What is the value of $\sin 90^\circ$?

Ans: 1.

Q3. In which quadrant is $\tan\theta$ positive but $\sin\theta$ negative?

Ans: Quadrant III.

Q4. State the identity relating $\sec^2\theta$ and $\tan^2\theta$.

Ans: $\sec^2\theta = 1 + \tan^2\theta$.

Q5. What is the radian measure equivalent to 180° ?

Ans: π .

Short Answer Questions (2–3 marks)

Q6. Prove that $\sin(90^\circ + \theta) = \cos\theta$ using the sum formula.

Ans: $\sin(90^\circ + \theta) = \sin 90^\circ \cos\theta + \cos 90^\circ \sin\theta = (1)(\cos\theta) + (0)(\sin\theta) = \cos\theta$.

Q7. Find the value of $\cos 75^\circ$ using the sum formula, expressing 75° as $45^\circ + 30^\circ$.

Ans: $\cos(45^\circ + 30^\circ) = \cos 45^\circ \cos 30^\circ - \sin 45^\circ \sin 30^\circ = (\sqrt{2}/2)(\sqrt{3}/2) - (\sqrt{2}/2)(1/2) = (\sqrt{6} - \sqrt{2})/4$.

Q8. A wheel of radius 21 cm rotates through an angle of 60° . Find the length of the arc traced (using arc length = radius $\times$ angle in radians).

Ans: $60^\circ = \pi/3$ radians. Arc length = $21 \times \pi/3 = 7\pi \approx 22$ cm.

Higher-Order Thinking / Application Questions

Q9. Explain why radian measure, rather than degree measure, is preferred in advanced mathematics (like calculus), using the arc length formula as part of your reasoning.

Ans: In radian measure, the arc length formula simplifies to $s = r\theta$ directly, without any conversion constant, because radians are defined based on the ratio of arc length to radius. This natural relationship makes calculus formulas involving trigonometric functions (like derivatives of $\sin$ and $\cos$) much simpler in radians than they would be in degrees, which require extra conversion factors.

Q10. Find the general solution of the equation $2\sin\theta = 1$, and explain why trigonometric equations typically have infinitely many solutions.

Ans: $\sin\theta = 1/2$ gives $\theta = 30^\circ = \pi/6$ as a principal solution. The general solution is $\theta = n\pi + (-1)^n(\pi/6)$, for any integer n . Trigonometric equations have infinitely many solutions because trigonometric functions are periodic ($\sin$ repeats every 2π), so if one value of θ satisfies the equation, adding any multiple of the period (with the appropriate symmetry adjustments) gives another valid solution.

Class 11 Maths Chapter 3 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 11 Maths Chapter 3 Solutions](#) and [Class 11 Maths Chapter 3 Revision Notes](#).

See also: [Chapter 2](#) | [Chapter 3](#)

Practice more: [Chapter 2](#)

Quick revision: [Chapter 2](#)

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