

Way to Success 

9

MATHS

A COMPLETE GUIDE

A Product from
WAY TO SUCCESS TEAM

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PREFACE

“Way to success leads to success”

‘If you go Deep Down into anything, you will see Math in it.’ Math is the building block of all science & engineering. Finding solution for Math problems in your text books aren’t a big deal, rather how well you understand the problem & how you approach a question matters much. You can make Math as your friend only when you understand it deeply. It helps you to solve the new unknown problems that appear in your examination easily. ‘**WAY TO SUCCESS – 9th MATHS – Complete Guide**’ will help you understand the problems much easier & provide apt & easy solution for each exercise problems in your text book. This guide will help the students to understand the concepts clearly and help them to score high marks.

This Book is drafted by experienced teachers and added colors by young minds. Self-learning in Math is highly impossible but this guide overcomes this struggle. You can learn Math by yourself with the help of this guide. Each unit contain a glimpse of its concept – important formulae & definitions, solution to all exercise questions. For better understanding of students, we have added the images of Graphs & Geometry, drawn by experienced teachers.

We assure you that this guide will serve you like a **good friend** to enhance your dreams in the near future.

☪ Our Teachers Team ☪

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We render our sincere thanks to the teachers’ team members and Mr. **A. Dinesh Prabhakaran** B.Sc., for supporting us to draft the book. A special thanks to Mr. **K. Chinnappan**, Founder of Way to Success Groups and Mr. **V. Somu**, Managing Trustee of Way to Success Trust for supporting us in all our activities. We also thank the entire Way to success family members who make this material to reach in your hands.

Best Wishes to All.

Way to Success Team

-----For subject-related clarifications-----

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Way to Success புத்தகங்கள் வேண்டுவோர் இப்புத்தகத்தின் கடைசிபக்கத்தில்
கொடுக்கப்பட்டுள்ள அலைபேசி எண்களில் உங்கள் மாவட்ட ஒருங்கிணைப்பாளரை அழைக்கவும்.

அல்லது 97 87 60 90 90, 97 87 20 10 10

ஆகிய எண்களைத் தொடர்புகொள்ளுங்கள்

General instructions to students:

- Math is no more a night mare with Way to Success. Enjoy learning math. Give your full concentration while solving problems. You don't need to practice Math for many hours, rather you need to understand each problem, what is been done at each step & why you are doing it etc.
- Take notes while you study & revise it very often. Create a separate list of important formulae.
- Do not study till the last minute of examination. Just go through the prepared notes before the exam.
- Read the question paper carefully & select questions which you know well & helps to get full marks.
- Don't forget to put the question number correctly. Do not write extra questions.

✿ **Wish you all the best to score good marks in the Examinations** ✿

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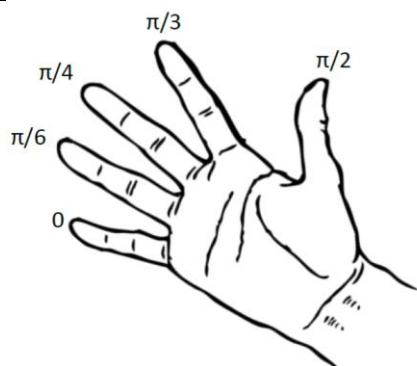
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At the beginning of each exercise, there will be an Introduction part which gives you a glimpse of the complete chapter.

Note :At most care is taken to fulfill your requirements without mistakes. If you find any mistakes, kindly inform us by e-mail to way2s100@gmail.com. Corrections will be updated then and there in our website www.waytosuccess.org and that will be carried out in our further edition.

Trigonometric Hand Trick



Consider the five angles on your five fingers of your hand as shown above.

Now calculate the trigonometric values as follows,

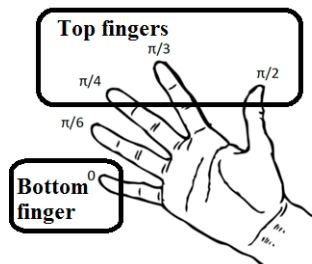
$$\sin \theta = \frac{\sqrt{\text{Number of bottom fingers}}}{2}$$

$$\cos \theta = \frac{\sqrt{\text{Number of top fingers}}}{2}$$

$$\tan \theta = \frac{\sqrt{\text{Number of bottom fingers}}}{\sqrt{\text{Number of top fingers}}}$$

Shortcut corner

Example: If you find $\sin \frac{\pi}{6}$

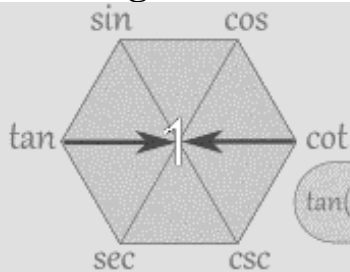
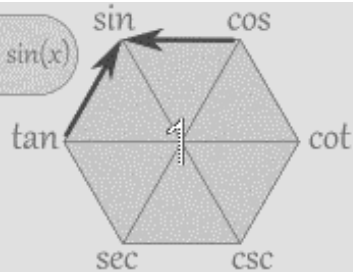


Number of top fingers = 3
Number of bottom fingers = 1

$$\begin{aligned} \sin \frac{\pi}{6} &= \frac{\sqrt{1}}{2} \\ &= \frac{1}{2} \end{aligned}$$

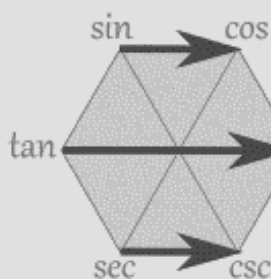
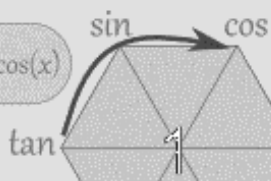
Magical hexagon

$$\tan(x)\cos(x) = \sin(x)$$



$$\tan(x)\cot(x) = 1$$

$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

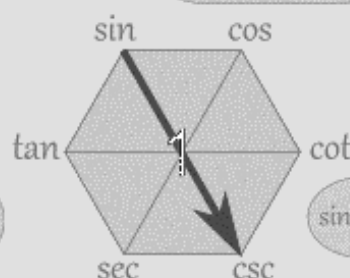
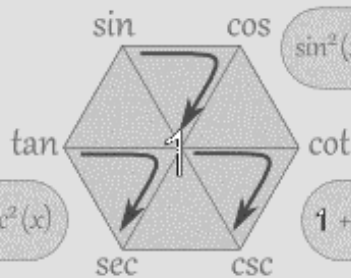


$$\sin(x) = \cos(90^\circ - x)$$

$$\tan(x) = \cot(90^\circ - x)$$

$$\sec(x) = \csc(90^\circ - x)$$

$$\sin^2(x) + \cos^2(x) = 1$$



$$\tan^2(x) + 1 = \sec^2(x)$$

$$1 + \cot^2(x) = \csc^2(x)$$

$$\sin x = \frac{1}{\csc x}$$