

Mathematics (Class XII)

Learning Outcomes	Sources/ Resources	Suggested Activities (to be guided by teachers)
<p>The learner</p> <ul style="list-style-type: none"> identifies different types of relations and functions. explores the values of different inverse trigonometric functions. 	<p>NCERT Textbook (for Class XII)</p> <p>Theme 1 Relations and Functions</p> <p>Theme-2 Inverse Trigonometric Functions</p> <p>E-resources Link for textbook/Laboratory Manual/Exemplar problem book—</p> <p>ncert.nic.in – publications--- PDF (I to XII);</p> <p>ncert.nic.in – publications--- Exemplar problems;</p> <p>ncert.nic.in – publications--- science laboratory manuals</p> <p>(Other mentioned at the bottom)</p>	<p>WEEK 1</p> <ul style="list-style-type: none"> Learners may be given different examples of relations including reflexive, symmetric and transitive and may be asked to differentiate between them. Note that at this juncture the types of different relations should be evolved by the students and not to be told by teachers on the group. Learners after observing the relations should send their comments to the teacher. The discussion on these comments should lead to different types of relations. The concept of equivalence relations can then be discussed. Learners should create examples of such relations and crosscheck their correctness. Exercises in the textbook and exemplar problem book for Class XII may be discussed. This will help in deepening the understanding of concepts. <p>WEEK 2</p> <ul style="list-style-type: none"> Similar activities as done in Week 1 for relations may be done for the concept of function. <p>WEEK 3</p> <ul style="list-style-type: none"> Trigonometric functions on different domains like $(0, \pi)$ or $(-\pi, \pi)$ may be discussed. Learners may comment on which domain the trigonometric function is one-one and onto, one-one or simply onto. The exchange of ideas can lead to the concept of inverse trigonometric functions. Learners may be motivated to make decisions and give reasons for that. This will ensure their involvement in the process of learning. Learners may trace curves for the inverse trigonometric functions in the e resources available on NROER and comment on their nature. Questions may be put to them like what graph can be seen if the domain of $\cos^{-1} x$ is restricted to $(-1, 1)$? Students may download the open source software, GeoGebra and try exploring the graphs of different functions including trigonometric functions.

		<p>WEEK 4</p> <ul style="list-style-type: none"> • Problems from textbook for Class XII and Exemplar Problem Book may then be discussed. The generation and sharing of ideas will clarify the concepts and Learners will become confident in posing and solving problems. • E-resources will help in visualising the concepts better.
<p><i>E-resources that include Geogebra</i></p> <p>Class XI</p> <p>https://nroer.gov.in/CIET%2C%20NCERT/video/details/55ddc14781fccb28d8d932a8?nav_li=55b1f72181fccb7926fe5451,55b1f73981fccb7926fe5523,55b1f73981fccb7926fe5526</p> <p>Class XII</p> <p>https://nroer.gov.in/CIET%2C%20NCERT/topic_details/55b1f73a81fccb7926fe552b?nav_li=55b1f72181fccb7926fe5451,55b1f73981fccb7926fe5523,55b1f73a81fccb7926fe552b</p>		