The Sutton Academy

Knowledge Rich Curriculum Plan

Year 13 Trig functions

Lesson/Learning Sequence	Intended Knowledge: *Students will know that…*	Tiered Vocabulary	Prior Knowledge: *In order to know this students, need to already know that…*	Assessment
Lesson Objective: To learn how to use the reciprocal trigonometric functions of secant, cosecant and cotangent.	• *Students will know that secϑ = 1/cosϑ* • *Students will know that cosecϑ = 1/sinϑ* • *Students will know that cot ϑ= 1/tanϑ = cosϑ/sinϑ* • *Students will know how to find values for secϑ, cosecϑ, and cotϑ*	Reciprocal - an expression or function so related to another that their product is unity; the quantity obtained by dividing the number one by a given quantity.	Students will know how to solve basic trigonometry. Students will know the definition of a reciprocal. Students will know how to use a cast diagram.	
To learn how to draw and use the graphs of secant, cosecant and cotangent.	• *Students will know how to sketch the graph of y=sec x* • *Students will know the domain of the graph y=sec x in both degrees and radians.* • *Students will know the know the range of y=sec x* • *Students will know how to sketch the graph of y=cosec x* • *Students will know the domain of the graph y=cosec x in both degrees and radians.* • *Students will know the know the range of y=cosec x.* • *Students will know how to sketch the graph of y=cotx* • *Students will know the domain of the graph y=cot x in both degrees and radians.* • *Students will know the know the range of y=cotx*		Students need to know how to sketch trigonometric graphs Students need to know about range and domain. Students need to know what asymptotes.	
Lesson Objective: To learn how to simplify expressions using secx, cosecx and cotx.	• *Students will know how to simplify expressions involving secx, cosecx and cotx , sin x, cosx and tan x.* • *Students will know how to prove simple identities.* • *Students will know how to manipulate trigonometric expressions.*		Students need to know how basic trigonometric identities. Students need to know how to manipulate fractions.	
Lesson Objective: To learn how to prove identities and solve equations using secx, cosecx and cotx.	• *Students will know how to solve trigonometric equations involving secx, cosecx and cot x*		• students will know how to simplify expressions involving all trigonometric functions. • Students will know how to prove simple identities. • Students will know how to manipulate trigonometric expressions." • Students will know how to use cast diagrams.	

Lesson/Learning Sequence	Intended Knowledge: *Students will know that…*	Tiered Vocabulary	Prior Knowledge: *In order to know this students, need to already know that…*	Assessment
To learn how to use trigonometric identities to simplify expressions and prove other identities.	• *"Students will know to prove and use 1 + $tan^2x = sec^2x$.* • *Students will know how to prove and use 1 + $cot^2x = cosec^2x$.* • *Students will know to simplify expressions using sec^2x. and $cosec^2x$.*		Students will know that $cos^2x + sin^2x = 1$ "Students will know how to simplify expressions involving all trigonometric functions. Students will know how to prove simple identities. Students will know how to manipulate trigonometric expressions."	
To learn how to use trigonometric identities to solve trigonometric equations.	• *Students will learn how to solve equations involving sec^2x, $cosec^2x$. and cot^2x.* • *Students will know how to manipulate trigonometric expressions in order to solve equations* • *Students will know how to use various trigonometric identities to solve equations*		Students need to know how to factorise quadratic expressions Students will need to know how to use a cast diagram. Students will need to know how to solve quadratic equations. Students will need to know basic trigonometric identities. "Students will need to know to prove and use 1 + tan2x = sec2x. Students will need to know how to prove and use 1 + cot2x = cosec2x. •Studens will need to know to simplify expressions using sec2x. and cosec2x.	
To learn how to find and use inverse trigonometric functions.	• *Students will know the inverse function of sin x is called arcsin x* • *Students will know that the domain of y=arcsinx is -1 < x <1* • *Students will that that the range of y=arcsinx is* $-\frac{\pi}{2} \leq arcsinx \leq \frac{\pi}{2}$ *or* $-90 \leq arcsinx \leq 90$ • *Students will know that the inverse function cos x is called arccosx* • *Students will know that the domain of y=arccos x is -1 < x <1* • *Students will that that the range of y=arccosx is* $0 \leq arccosx \leq \pi$ *or* $0 \leq arccosx \leq 180$ • *Students will know how to find the value of an inverse function.* • *Students will know how to solve inverse trigonometric ewquations.* • *Students will know how to sketch inverse trigonometric graphs.* • *Students will know how to use inverse trigonometric functions to form proofs.*		Sequencing and Prior Knowledge Students need to know how find the range and domain of functions. Students need to know how to use cast diagrams.	