Daily Lesson Plans for PreCalculus

Inverse Trig Functions and Applications 4.7-8

Tuesday, October 15, 2019

Objective: I can understand the concept of trig inverse limited ranges (one to one) and radian as output instead of input. I can use this relationship to find unknowns using points and radians on the unit circle in the limited range of values.

* Tests not graded. Thanks for all being here.
* Notes – back to Algebra II: what is an inverse? How do you invert a parabola (limit its domain)?
* Read p 318 from textbook. What are some things you notice? Limiting domain of original to limit range of the inverse so that it will pass the vertical line test. (Find a portion of the original function that passes the horizontal line test.)
* Graph – sine, cosine, tangent and their inverse functions, recording domain & range
* Now fill in chart of the six functions with inequalities and shaded graphs to show the intervals (domain and range) over which the six are defined.
* Go through 1st worksheet down to problem G, working together.
* HW #1a – do worksheet #2 down to G.

Thursday, October 17, 2019

Objective: I can use inverses to draw triangles and graphs that will help me find values of expressions, some of which are compositions of functions, even using variables as sides of triangles.

* On original blue unit circle sheet, go to the back where you have only coordinates on unit circle. Since sin = y coordinate and cos = x coordinate and tangent = sin/cos, you can find the tangent value at any special point on the unit circle. Write these in radical form and notice patterns. Can I always look on the other end of the diameter to get the same value?
* Read top of p 322 for Inverse Function Properties – basically f(f-1(x)) = x, f-1f(x) = x. So is arccos(cos(-3π/2) = -3π/2? No, because it is not in the range of acceptable values for a cosine function, so we have to check unit circle to find a radian between 0 and Pi that will be the same (pi/2).
* Finish out worksheet 1. Answering questions.
* Now finish worksheet 2 in class. Check answers from my blog post.
* If you finish, then I will take a 6 pt grade over the two worksheets together for HW #1 – 6 pts.
* View tests.
* HW #2 – due Monday – pp324-5: 1-4, 5-17odd, 21-29odd, 39-49odd, 51-57odd, 63-69odd

Quiz 4.7 not til next Wednesday, Oct 23.

Monday, October 21, 2019

I can graph inverse trig functions using technology to limit domains. I can interpret angles in right triangles in terms of inverses. I can apply skills related to inverse trig functions to solve and interpret problems.

* Graphing activity – using TI 84+ to graph inverse functions… how to limit domain. Make observations.
* Were we using inverse functions in geometry when we found angles in triangles. Here is a story… how did you do this in Geometry? Is trig any different?
* Answers to worksheets and textbook homework. Any questions.
* Hand out Worksheet #3 for HW #3. Work in class. Self-check at end of class.
* Quiz next time… based on HW 1-3 of this unit. Study! Know your domains and ranges of your inverses!

Wednesday, October 23, 2019

I can demonstrate mastery over inverse trig functions by knowing domain/range, graphing basics, evaluating inverse trig functions and compositions of inverse trig functions. I can find missing angles and sides of right triangles in real world application using inverse to find angles.

* Warm-up: angle of descent problem on smartboard. Have students share and write in a sketch, a trig equation and an inverse equation.
* Label triangles like homework worksheet with vertices A, B, and C and opposite sides a, b, and c. How to find missing angles and sides (like warm-up)
* Answers to Wksheet #3 on screen. Questions. Go over some key questions.
* Quiz 4.7 – 25 pts (no-calculator followed by calculator allowed)
* HW #4 – pass out two page worksheet. Only do 1-15. Give some hints about how it should look. Save last page for next class. You may try some if you want.
* Quiz 4.8 on Wed, Oct 30.

Test 4.7-8 on Friday, Nov 1?

Monday, October 28, 2019 (day off Friday for conferences)

I can use trigonometric and inverse trigonometric functions in real world application to find unknown distances or angles. I can understand and apply the concept of angles as bearings.

* Read in textbook about Trigonometry and Bearings. Understand the difference between bearings for flights vs bearings for navigation or surveying.
* Go over HW #4 (problems 1-15 from worksheet). Questions. Do another problem like #14 – find the area of the triangle. Also model: finding the side of a regular pentagon inscribed in a circle if you know the radius.
* Do problem 21 together (the sketch with the swamp).
* Modeling and trying: #38 from textbook for flight angles.
* Work on the rest of the worksheet as HW #5.
* Assign webassign over the same thing, to be completed by Tuesday at 11:59 pm.

Quiz next time over 4.8 – a lot like worksheet. Do not worry about the two hard problems.

Wednesday, October 30, 2019

I can demonstrate mastery over real-world application of basic trigonometric ratios with directional bearings also. I can apply skills related to 4.7-8 to solve problems.

* Go over worksheet
* Go over webassign
* Questions?
* Pass out review worksheet (HW #6)
* Quiz 4.8 – application – 20 pts
* Return 4.7 quizzes
* Work on review assignment.
* Test next block: 4.7-8.

Friday, November 1, 2019

I can demonstrate mastery over inverse trig functions and real world application of trig ratios with directional bearings.

* Show answers to review; go over questions.
* Pass out quizzes.
* Questions.
* Preview factoring/ pass out HW #7 – factoring review. ONLY DO THE QUESTIONS ASSIGNED, NOT ALL OF THE WORKSHEET!
* Unit Test 4.7-8 – no calculator/ calculator