Daily Lesson Plans for PreCalculus

Trig Functions and Their Graphs 4.4-6

Friday, September 20, 2019

Objective: I can evaluate trig ratios by sketching appropriate right triangles in any quadrant and finding x and y coordinates, r, and the values of the trig ratios.

* Test make-up issues.
* Next test on the 7th block from today.
* Notebook check coming up: Ms. B walks around to make sure you are keeping a notebook with notes, practice and book homework in sequential order with a packet of handouts.
* Big picture notes for 4.4 – trig ratios in any quadrant.
* After lunch: examples and practice from 4.4 (use textbook or online textbook)
* HW #1: Pages 294, Vocabulary Check #s: 1-8. Exercise #s: 9a, 9b, [11a](https://www.youtube.com/watch?v=NStdGkbnm-8), [11b](https://www.youtube.com/watch?v=NStdGkbnm-8), 13, 15, [19](https://www.youtube.com/watch?v=vmPDWn8Bogw), [20](https://www.youtube.com/watch?v=pOk_S8Ze_YI), [21](https://www.youtube.com/watch?v=jGys-jXOXTM), 22, [23](https://www.youtube.com/watch?v=bcZO2MfhPp0), 24, [25](https://www.youtube.com/watch?v=ZWWFuHznFcs), [27](https://www.youtube.com/watch?v=8RNU4nKdUFI), 29, 31, [33](https://www.youtube.com/watch?v=ntZ6yfCXWCg), [35](https://www.youtube.com/watch?v=zUJqGNgkk4c), [39](https://www.youtube.com/watch?v=TyGQ3HWso10), [40](https://www.youtube.com/watch?v=hb-ywRQ2VDI), 41, [47](https://www.youtube.com/watch?v=P7_pvmYOSzM), [49](https://www.youtube.com/watch?v=PhVja7HehyI), [51](https://www.youtube.com/watch?v=2OkNMpqiTVo), 53, [55](https://www.youtube.com/watch?v=EGthobOHPm8), 57, 59, 61, 63, [69](https://www.youtube.com/watch?v=PYxD8_0550k), 71, [73](https://www.youtube.com/watch?time_continue=1&v=VlqR9SAZeOg), [79](https://www.youtube.com/watch?v=kzkYxv6gdVo), [81](https://www.youtube.com/watch?v=-AaX9FemiRY), 85, 89, [91a](https://www.youtube.com/watch?v=z1Pymhz9meM), [91b](https://www.youtube.com/watch?v=z1Pymhz9meM), 93a, 93b, 95b, and 97.
* View tests.

Quiz over 4.4 on the next block. Calculator and no calculator.

Tuesday, September 24, 2019

Objective: I can demonstrate mastery over trig ratios in all 4 quadrants using right triangles centered at the origin with a leg to the x axis. I can graph one period of the sine and cosine function using radians and coordinates from the unit circle.

* Graph lines on 4 problems from the bottom of p 294. Can you graph a line through the origin?
* Answers to HW. Questions. Emphasize IMPORTANT parts of the homework.
* Preview – what are the sine and cosine function? How do they look
* After lunch – hands on graphing activity of sine and cosine function. Finish for HW.
* Quiz 4.4 – no calculator, followed by calculator part.
* Any test make-up issues?

No other HW; no quiz next time. Quiz 4.5 – Thurs, Oct 3, Quiz 4.6 – Mon, Oct 7, Test Oct 9.

Thursday, September 26, 2019

I can graph sine and cosine functions with and without technology, performing transformations on the functions (amplitude, period, vertical translation, phase shift, reflect over x-axis.

* Warm-up: 13.1 investigation from PH Algebra II, ferris wheel problem
* Return quizzes; take a grade over HW #1 – 8 pts
* Enter equation for ferris wheel story, graph and figure out connections in the function.
* Hand out notes for today.
* Graph transformations of functions in the calculator and make observations about amplitude, period, vertical translation, reflection, phase shift.
* HW #2 – pp 304-7: 1-4, 5-9 odd, 13-19 odd, 21-24, 25-29odd, 31,35,41,47,49,55,59, 65-71 odd, 75-77 odd.
* Practice examples from the book graphing by hand using visual transformations.

Tuesday, October 1, 2019

I can graph sine and cosine functions and their transformations without a calculator, identifying analytical information. I can write equations of sine and cosine functions from graphs. I can analyze trig functions for domain, range, max, min, zeroes, y-intercept, period, amplitude, phase shift, vertical translation, and reflection.

* Graph y = sin x in calculator, turn upside down. 180 degree rotational symmetry. So odd function. (Change the sign of x and y to rotate 180 degrees means the same thing as f(x)=- f(-x).) Graph y = cos x in calculator. Could you fold on the y-axis to see reflectional symmetry? Which means change the sign of x to reflect across y. Or f(x)=f(-x). An even function. Group analyze by questions around the room: even/odd, domain/range, max/min, zeroes (using n because there are infinitely many), y-intercept, vertical translation, amplitude, reflection?, period, and phase shift.
* Answers to HW. Questions.
* Use last two questions to launch: how to write equation of line accurately. Specifically, how to get b and c correctly. How to look at a graph and write the equation by finding d (midline), a(distance from midline), -a (reflected across x), b (2Pi/b = period), and c (where c/b = phase shift, neg to right, pos to left).
* Notes – graphing a function in accurate detail, finding period, amplitude, vertical and phase shift from equation.
* Graphing Calculator Activity – 10 problems, write an equation for the function from a graph (there can be more than one accurate answer).
* HW #3 – two worksheet reviews over 4.5

Quiz 4.5 on Oct 3, quiz 4.6 on Oct 7, test on October 9 over 4.4-6.

Thurs, Oct 3, 2019

I can demonstrate mastery over graphing and writing and interpreting equations of sine and cosine functions including vertical shift, phase shift, period, amplitude, reflection, domain, range, max, min, zeroes and y-intercept.

* Go over review worksheets HW #3. (Did not have time to grade, will do next time.)
* Quiz 4.5
* Notes and Practice – graphing tangent, cotangent, secant, and cosecant functions. Fill in chart for function analysis for these.
* Quiz next block (Monday) over this document. Study it. Be able to sketch a graph of the four functions without a calculator. Think: does this function have a value at 0 and π? Then it does not an asymptote there. And vv.
* Review next block, Test on Wed, Oct 9.

Monday, October 7, 2019

I can demonstrate mastery over the parent discontinuous trig functions and analyze them correctly (domain, range, asymptotes, even/odd, etc.). I can apply skills related to graphing of trig functions and interpreting values in any quadrant.

* Warm-up: definitions of discontinuous functions and where on the unit circle would their denominators be equal to zero (where are the asymptotes of the functions?)
* Questions over worksheet. Correct csc and sec to have periods of 2Pi. Make sure Cot and tan are odd (point symmetry around origin).
* Pass out review to do for homework #5
* After lunch – Quiz 4.6 – 23 pts
* Take a grade over HW #3- 5 pts (4.5 worksheets) and HW #4 – discontinuous worksheet.
* Return quizzes 4.5 (make-ups in class today)
* Work on review when finished with the quiz.
* Unit Circle quiz on Wednesday, Oct 9.
* Unit Test on Friday, Oct 11.

Wednesday, October 9, 2019

I can demonstrate mastery over degrees, radians, & coordinates given a ray on the unit circle. I can apply skills related to trig functions in any quadrant, graphing sine and cosine functions and their transformations, graphing discontinuous trig parent functions and analyzing them.

* Warm-up with some fraction practice that would be helpful when writing trig functions from information or when interpreting trig function to find information. Self-checked.
* Took a 4 pt grade on first review. Self check, answer questions.. when would sketching a triangle be most helpful?
* Self-study unit circle degrees, radians, coordinates
* Unit Circle Quiz - 20 pts
* Return quizzes.  Look at quizzes. Ask questions..
* Work on extra review assignment written by Mr. Willett.
* Self-check answers; finish for HW #6.
* Suggestions to study: use quizzes 4.4-6 to study. Be aware of calculator vs. no calculator. Complete and study both reviews. Download topic list below and check through skills by quiz to make sure you know what they are.
* Extra study: log in to textbook through webassign. Flip through Chapter 4 using the right arrow until you get to Chapter 4 Review. Scroll down to section 4.4. Do all problems from 43-68 that have answers available for you to check.

Test Friday, October 11, 4.4-6

Friday, October 11, 2019

I can demonstrate mastery over graphs of trig functions, including all transformations of sine and cosine. I can find function values in any quadrant and angles in reference triangles.

* Return Unit Circle Quizzes
* Answers to second review on screen.
* Questions over any quizzes or review questions or any other questions.
* Preview – inverses
* Unit 2 Test – 100 pts