Precalculus Daily Lessons 1.9, 3.1-4 – Exponential Functions

February – March 2020

Friday, February 20, 2020

Objective: I can determine if two functions are inverses, when a function has an inverse; I can describe inverse functions graphically, algebraically and with words domain, range, input, output. I can describe what a one-to-one function is.

* Warm-up: composition of functions, leading to f(g(x)) = g(f(x)) = x, definition of inverses
* Graphing activity. Graph these 5 functions (how to limit domain). Sketch and give domain and range.
* Notes and practice: Finding inverse graphically and algebraically (Use #1 from graphing activity). Show how #5 is its own inverse.
* Go thru examples in textbook 1.9 quickly. Use as resource on homework.  
  HW #1 – pp 90-92: 1-6, 10, 15, 18, 21, 29, 30, 37-40, 55, 58, 61, 79, 83, 89, 91, 92, 93

Tuesday, Feb 25, 2020

Objective: I can practice using inverse definition to solve problems.

* Go over HW #1. Take a grade next time. Fix it.
* Pass out worksheet 1.9 (HW #2) – work in class.
* Return test 6.3-4 to view – 50 pts

Quiz next time – 1.9 Inverses

Thursday, Feb 27, 2020

Objective: I can demonstrate mastery over inverse functions. I can analyze, write and evaluate exponential functions.

* Warm-up: Evaluate exponential expressions with exponents of -1 (reciprocals); get several expressions to have the same base.
* Go over inverse worksheet; questions
* Quiz 1.9 – Inverses 20 pts
* Notes and practice 3.1 – what is an exponential function? Graph and analyze one. Transformation notes (left/right, up/down, reflect across y-axis, reflect across x-axis); getting a common base to solve simple equations
* HW #3 – p 206: 13-16, 19-20, 25-32
* And do worksheet 3.1 #1

Quiz Wednesday, March 4, 3.1

Monday, March 2, 2020

Objective: I can understand the definition of e in terms of limits of a function (horizontal asymptote). I can apply the formula for continuous compounding and interpret exponential functions about half-life including base e.

* Graph in calculator: y = (1 + 1/x)^x and find the horizontal asymptote.
* Understand that this asymptote or limit is actually Euler’s number.
* Go over HW #3 (worksheet and textbook).
* Notes over using “e”. Comparing continuous compounding to daily or monthly compounding. Analyzing exponential functions.
* Questions.
* Issue: finding horizontal asymptotes without graphing. Work on that next time.
* Pass out Worksheet #2 and add an assignment from the textbook: p 207: 45, 46, 50, 55, 57, 58, 63, 66. (This is all HW #4)
* View quizzes 1.9
* Take a grade on HW #1, 2, and 3, 4 pts each. (Did not finish)
* Quiz next time on 3.1 at the end of class.

Wednesday, March 4, 2020

Objective: I can demonstrate mastery over basics of exponential functions, growth, and decay. I can understand and apply the definition of a logarithm to convert expressions from exponential to log and vv. I can graph and analyze a basic log function as an inverse to an exponential function.

* Go over Worksheet 3.1 #2. Address issues of working without a calculator graph to analyze functions.
* Learn how to find horizontal asymptotes when the exponent is in the denominator (without a calculator).
* Go over textbook HW answers.
* Take a grade on HW #1,2, and 3 for other half of class.
* Notes and practice 3.2 – definition of logarithms and converting. Graphing log function as inverse of exponential. Analyzing log function (as inverse).
* HW #5 – p 216: 7-20, 25-27, 37-40
* Next time: take a grade on HW #4.
* Quiz 3.1 - ? pts

Quiz 3.2 will be Tuesday, March 10.

Friday, March 6, 2020

Objective: I can demonstrate mastery over exponential functions graphically, as inverses, in context of growth and decay, and by evaluating. I can define logarithmic functions as inverses of exponential functions with switched domain, range, and asymptotes. I can use the definition of logarithms to evaluate expressions.

* Answers to textbook work HW #5 on p 216. Questions.
* More notes and practice on 3.2.
* Try examples. Then problems from textbook listed on attached notes.
* In class – Worksheet 3.2 review.
* HW #6 – Worksheet 3.2 #2 review.
* Return quizzes 3.1 – 27 pts

Quiz next time 3.2. We will do a third worksheet at the beginning of class. Take notes over linear. Textbook HW #7 over linear. Quiz 3.2 at the end of class.

Tuesday, March 10, 2020

Objective: I can demonstrate mastery over logarithmic definition and functions. I can write and interpret linear functions.

* Go over Worksheet 1 & 2. Questions.
* Worksheet #3 – logarithmic functions
* Solve 3 logarithmic quadratic equations.
* Notes and practice 1.3 – linear functions.
* HW #7
* Quiz 3.2 – 33 pts

Quiz Monday over 1.3.