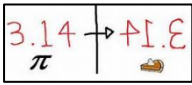



IBMYP A2T Unit 6 – Exponential & Logarithmic Functions & Relations

- **HOMEWORK WORKSHEET POLICY:** In order to receive a 3, you must attempt each problem & FULLY correct in a RED pen. ALL GRAPHING MUST BE DONE ON GRAPH PAPER!
- **Mathspace:** CHOOSE A DIFFERENT BOOK FOR THIS UNIT: VIRGINIA BEACH MATH ANALYSIS 2020 EDITION, UNIT 3.
- **Mathspace Quiz Policy:** If you choose to do a Mathspace, you must turn in detailed work for at least 10 problems (when applicable) in order for the quiz grade to count! Write the section and score at the top of your paper. You have until the end of the unit to turn these in for a grade.

DATE	DAILY LEARNING TARGETS & OBJECTIVES	INDEPENDENT PRACTICE (HOMEWORK)	GRADE
Tue/Wed, Feb. 18/19 Day 000	Test on Unit 5 Best Deal Performance Task due next block!	Day 00 Solving Exponential Equations Desmos Phase 2 due by Friday, February 24(A) 25(B)	– 3
Thu/Fri, Feb. 20/21 Day 01	Graphing Exponential Functions	Day 01 Graphing Exponential Functions DESMOS PHASE 2 DUE NEXT BLOCK!	– 3
Mon/Tue Feb. 24/25 Day 02	Modeling Exponential Growth & Decay Penny Lab	Day 02 Exponential Growth & Decay Applications	– 3
Wed/Thu, Feb. 26/27 Day 03	Logarithms and Graphing Logarithmic Functions Common and Natural Logarithms Feb. 26: CAV Connection – Adjusted Schedule	Day 03 Logarithm Skills Practice	– 3
Fri/Mon, Feb. 28/Mar. 2 Day 04	Properties of Logarithms Tuesday, March 3 – STAFF DAY: NO SCHOOL	Day 04 Properties of Logarithms Practice	– 3
Wed/Thu, Mar. 4/5 Day 05	Solving Logarithmic Equations with like bases Progress Reports Issued March 4	Day 05 Mixed Equations Practice #1	– 3
Fri/Mon, Mar. 6/9 Day 06	Solving Logarithmic Equations with unlike bases Change of Base Formula	Day 06 Mixed Equations Practice #2	– 3
Tue/Wed, Mar. 10/11 Day 07	Applications of Exponential & Logarithmic Functions March 11: CAV Connection – Adjusted Schedule	Day 07 Applications of Exponential and Logarithmic Functions	– 3
Thu/Fri, Mar. 12/13 Day 08	Unit 6 Review Saturday, March 14 is π Day!	Day 08 Unit 6 Test Review Worksheet Finish any Mathspace Quizzes you want to be graded!	– 3
Mon/Tue, Mar. 16/17 Day 09	Test on Unit 6 	TOTAL POINTS 	– 27

UNIT 6 EXPONENTIAL & LOGARITHMIC FUNCTIONS LEARNING TARGETS:

Target		Unit 3 Math Analysis Mathspace
Target 1	I can graph exponential and logarithmic functions, and I can identify the type of function and the transformation and components of its graph.	3.02 Exponential Functions 3.05 Logarithmic Functions
Target 2	I can convert equations from exponential to logarithmic form and vice-versa, evaluate logarithmic expressions, use the properties of logarithms to expand and condense logarithmic expressions, and explain the restrictions on the base of an exponential or logarithmic function.	3.06 Properties of Logarithms
Target 3	I can identify the inverse relationship between exponential and logarithmic functions and find the inverse of exponential and logarithmic functions.	3.04 Inverse relationship between exponentials & logarithms
Target 4	I can solve exponential and logarithmic equations with and without a calculator, as appropriate, and I can identify extraneous solutions and the reason(s) they occur.	3.07 Exponential & logarithmic equations
Target 5	I can solve real-life problems that require the use of exponential and logarithmic models.	3.03 Application of exponential functions 3.08 Application of logarithmic functions



UNIT 6 ENDURING UNDERSTANDINGS:

1. Exponential functions are used to model rapid growth or decay.
2. Logarithmic function is the inverse of exponential function.
3. The changes in the parameters of the exponential and logarithmic functions affect the transformation of its graph.
4. The properties of logarithms are related to the laws of exponents.
5. The rate of continuous growth or decay can be determined using logarithms.
6. Logarithms **ARE** Exponents!

UNIT 6 ESSENTIAL QUESTIONS:

1. What are the unique limitations of exponential and logarithmic functions? Why do they occur?
2. How are exponential and logarithmic functions related? Be sure to include EVIDENCE.
3. How are the properties of exponents used in simplifying expressions and solving logarithmic equations?

SOL Objectives (2009):

- All.6 For absolute value, square root, cube root, rational, polynomial, exponential, and logarithmic functions, the student will
- a) recognize the general shape of function families; and
 - b) use knowledge of transformations to convert between equations and the corresponding graphs of functions.
- All.7 The student will investigate and analyze linear, quadratic, absolute value, square root, cube root, rational, polynomial, exponential, and logarithmic function families algebraically and graphically. Key concepts include
- a) domain, range, and continuity;
 - b) intervals in which a function is increasing or decreasing;
 - c) extrema;
 - d) zeros;
 - e) intercepts;
 - f) values of a function for elements in its domain;
 - g) connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs;
 - h) end behavior;
 - i) vertical and horizontal asymptotes;
 - j) inverse of a function; and
 - k) composition of functions algebraically and graphically.
- All.9 The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of quadratic and exponential functions.

