Math 12 Pre-Calculus LG 14

LOGARITHMIC FUNCTIONS AND EQUATIONS

INTRODUCTION:

Logarithms are very useful. Check out pages 370-371.

LEARNING GUIDE EXPECTATIONS:

On the completion of this learning guide you will be able to:

1) Analyze the graphs of logarithmic functions.
2) Explain the relationship between a logarithm and exponent.
3) Evaluate a logarithm.
4) Apply transformation to logarithmic functions.
5) Apply the laws of logarithms to expressions.
6) Solve logarithmic and exponential equations.

EVALUATION:

Write the LG 14 assessment quiz. **NOTE: GRAPHING CALCULATORS ARE NOT PERMITTED ON THIS TEST.**

RESOURCES NEEDED:

Math 12 Pre-Calc Text

Math 12 Pre-Calc Learning Guides.

sd42onlinemath.yolasite.com

LEARNING ACTIVITIES:

Expectation #1: Analyze the graphs of logarithmic functions.

Expectation #2: Explain the relationship between a logarithm and exponent.

Expectation #3: Evaluate a logarithm.

1. Watch and take notes on instructional video on Intro to Logarithms.

2. Watch and take notes on instructional video on Graphing Logarithmic Functions.

3. In the textbook, read Link the Ideas on page 373.

4. Work through Examples 1-5 on pages 374-379 and complete the corresponding "Your Turn" questions.

5. Read Key Ideas on page 379. In your math journal, explain the relationship between a logarithmic function and an exponential function. Draw the graph of a logarithmic function and list is its properties.

6. In the textbook, complete pages 380 - 381 #1 - 15

Expectation #4: Apply transformation to logarithmic functions.

1. Watch and take notes on instructional video on Transformations of Logarithmic Functions.

2. You have learned transformations in LG 1&2. You will now apply these to the logarithmic function you have learned in Expectation 1 of this guide. Complete Investigate Transformations of Logarithmic Functions on page 383.

3. Work through Examples 1 - 4 on pages 384-389 and complete the corresponding Your Turn questions.

4. Read Key Ideas on page 389. In your journal, describe how to use transformations to graph a logarithmic function. Include an example to illustrate.

5. In the textbook, complete pages 389 – 391 #1 – 11.

Expectation #5: Apply the laws of logarithms to expressions.

1. Watch and take notes on instructional video on Laws of Logarithms.

2. Read Link the Ideas on page 394.

3. Work through Examples 1-4 on pages 395-399 and complete the corresponding Your Turn questions.

4. Read Key Ideas on page 400. In your journal, list, using an example, each of the laws of logarithms.

5. In the textbook, complete pages 400-403 #1-3, 5, 7-12.

Expectation #6: Solve logarithmic and exponential equations.

1. Watch and take notes on instructional video on Solving Logarithmic Equations.
2. Watch and take notes on instructional video on Solving Exponential Equations.
3. Read Link the Ideas on page 406.
4. Work through Examples 1-4 on pages 406 - 411 and complete the corresponding Your Turn questions.
5. Read Key Ideas on page 412. In your journal, complete question C5 on page 415 on how to solve exponential and logarithmic equations.
6. In the textbook, complete pages 412 #1 - 13, 15.

REVIEW AND CHALLENGE

1. In the textbook, complete Chapter 8 Review pages 416 - 418 #1 – 23.
2. Complete Chapter 8 Practice Test pages 419 – 420 #1 – 17.

Key Terms: logarithmic function, logarithm, common logarithm, logarithmic equation.

PRACTICE QUIZZES

Practice quiz #1
Practice quiz #2
Practice quiz #3
Practice quiz #4

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