Algebra 2 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 6 Review: Logarithmic Functions Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_\_\_\_\_

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| ***Keeper # 35: Logarithmic Functions***Rewrite each equation in exponential form.

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| 1.)  | 2.)  |

Rewrite each equation in logarithmic form.

|  |  |
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| 3.)  | 4.)  |

Evaluate. Round any decimal answers to the hundredths place.

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| --- | --- | --- |
| 5.)  | 6.)  | 7.)  |

***Keeper # 36: Properties of Logarithms***Expand the logarithm.

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| 8.)  | 9.)  |

Condense the logarithm.

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| 10.)  | 11.)  |

Use the change of base formula to evaluate.

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| 12.)  | 13.)  |

***Keeper # 37: Solving using Logs***Solve. Round your answer to the hundredths place if necessary.

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| 14.)  | 15.)  |
| 16.)  | 17.) |
| 18.)  | 19.)  |
| 20.)  | 21.)  |

***Keeper # 38: Inverses of Logarithmic & Exponential Functions***Determine the inverse.

|  |  |
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| 22.)  | 23.)  |
| 24.)  | 25.)  |

***Keeper #39: Characteristics & Graphing Logarithmic Functions***Graph the function. Then identify the characteristics.

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| 26.)  | 27.)  |
| Domain: \_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_x-intercept: \_\_\_\_\_\_\_ y-intercept: \_\_\_\_\_\_\_\_\_ Asymptote: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ End Behavior: Interval of Increase or Decrease: \_\_\_\_\_\_\_\_\_ | Domain: \_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_x-intercept: \_\_\_\_\_\_\_ y-intercept: \_\_\_\_\_\_\_\_\_ Asymptote: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ End Behavior: Interval of Increase or Decrease: \_\_\_\_\_\_\_\_\_ |

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***Keeper # 40:: Applications of Logarithmic Functions***

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| 28.) Maryville was founded in 1950. At that time, 500 people lived in the town. The population growth in Maryville follows the equation $y =500+1.5^{t}$, where t is the number of years since 1950.  A. Determine when the population had doubled since the founding.  B. In what year was the population predicted to reach 25,000 people? |
| 29.) Tanisha has $100 to invest at 8% per year in an account that is compounded continuously.  A. How long will it be before she has $150? B. What rate would Tanisha need to invest her money in order to make $300 in 7 years? |