

Pre-AP Precalculus

Assignment 2.1 – Exponential and Logarithmic Functions

1. Graph the following functions on the provided graph paper and answer the following questions on a separate sheet. Be sure to label each function.

a) $f(x) = 5^x$

b) $f(x) = \frac{1}{5}^x$

c) $f(x) = -5^x$

d) $f(x) = -\frac{1}{5}^x$

- Describe the changes that occurred with the various base values.
- Did the domain change?
- Did the range change?
- What would happen if x was negative?

2. Graph the following functions on the provided graph paper and answer the following questions on a separate sheet. Be sure to label each function.

a) $g(x) = 2^x$

b) $g(x) = \frac{1}{2}^x$

c) $g(x) = -2^x$

d) $g(x) = -\frac{1}{2}^x$

- Describe the changes that occurred with the various base values.
- Did the domain change?
- Did the range change?
- What would happen if x was negative?

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3. Using the function below, find the inverse and graph both functions

$$f(x) = 2^x$$

Graph the given functions and their parent functions for #'s 4-12 on the provided graph paper.

4. $f(x) = \log_2(x + 3) + 1$

5. $f(x) = \log_2(x - 3) - 1$

6. $f(x) = \log_3(x - 1) + 4$

7. $f(x) = \log_3(x - 1) - 4$

8. $f(x) = \ln(x + 2) + 5$

9. $f(x) = \ln(x - 1) + 4$

10. $f(x) = -\log_2 x$

11. $f(x) = \frac{1}{2} \ln x$

12. $f(x) = 4\log_2(x + 3) - 2$