

Pre-Calculus

Unit 3 Review I

1. Rewrite the following expression with positive exponents.

$$\left(\frac{3^{-x}}{5^{2y}}\right)^{-3}$$

2. Which transformation(s) are present in the following function?

$$y = -6(3^{2x}) - 7$$

3. Rewrite the following exponential expression in logarithmic form.

$$4^{3x} = 1024$$

4. Rewrite the following logarithmic expression into exponential form.

$$\ln(x - 5) = 60$$

5. Evaluate the following expression.

$$\log_3 \frac{1}{81}$$

6. What graphical transformation does the four represent in the following function?

$$y = -3 \ln(x + 4)$$

7. Write the following expression into expanded form.

$$\ln\left(\frac{a^4 c^6}{b^5}\right)$$

8. Write the following expression into condensed form.

$$-2 \ln a - 3 \ln b + 4 \ln c - 8 \ln d$$

9. Solve the following exponential equation.

$$3e^{2x} = 90$$

10. Solve the following logarithmic equation.

$$5 \ln(2x + 1) = 150$$