

# IM 3

# Chapter 7 Review 1

Name: \_\_\_\_\_ Per: \_\_\_\_\_ Date: \_\_\_\_\_

Show ALL work in the space provided. Round to three decimal places.

$y = b^x \Leftrightarrow x = \log_b y$	$\log_b (mn) = \log_b m + \log_b n$	$\log_b \left( \frac{m}{n} \right) = \log_b m - \log_b n$
$\log_b m^n = n \log_b m$		$\log_b m = \frac{\log_c m}{\log_c b}$

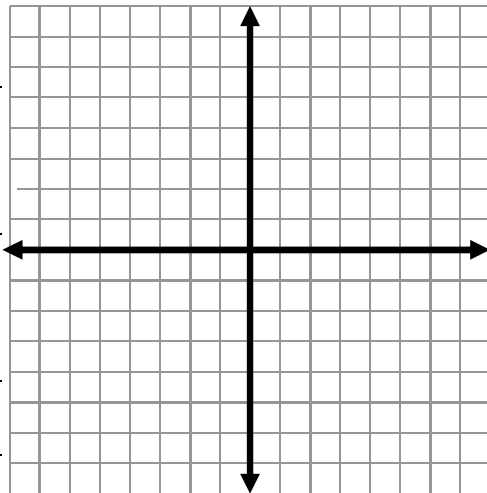
1. Write $\log 11 = 1.041$ in exponential form.	2. Write $2y - 3 = e^{3x+4}$ in logarithmic form.
3. Write $\ln e^{-5} = -5$ in exponential form.	4. $7y + 9 = 10^{5x-4}$ in logarithmic form.
5. Find the inverse of $y = \frac{\ln(3x+4)}{2}$ .	6. Solve: $5e^{3x-4} + 15 = 25$ . Round to three decimal places.
7. Find the inverse of $y = \frac{\log(2x-5)}{3}$ .	8. Solve: $2 \cdot 10^{2x-3} - 4 = 12$ . Round to three decimal places.
9. Solve: $16^{4x} = 8^{3x+5}$ .	10. Write the expression $\log_4 64 + \log_4 16 - \log_4 256$ as a single logarithm then evaluate.
11. Solve: $25^{3x} = 125^{2x-1}$ .	12. Write the expression $\log_3 27 - \log_3 9 - \log_3 3$ as a single logarithm then evaluate.

**13.** Graph  $y = \log_2(x)$  and  $y = \log_2(x+4)$  on the same graph. Sketch the asymptotes, and state the domain and range of  $y = \log_2(x+4)$  and describe the translation.

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Translation: \_\_\_\_\_



**14.** Describe the translation of the graph  $f(x) = 2^{x-3} - 4$  to  $g(x) = 2^{x+6} + 5$ .

**15.** Describe the translation of the graph  $f(x) = e^{x+4} + 5$  to  $g(x) = e^{x-2} - 6$ .

**16.** Solve  $\ln 6 + \ln x = 6$ . Give an exact answer and an approximation to 3 decimal places.

**17.** Expand  $\log_4(4\sqrt[6]{x})$ . Simplify if possible.

**18.** Solve  $\log x - \log 3 = 4$ . Give an exact answer and an approximation to 3 decimal places.

**19.** Expand  $\log_3(9\sqrt[4]{x})$ . Simplify if possible.

**20.** Graph  $y = 8^x$  and  $y = 8^{x+2} - 5$  on the same graph. Sketch the asymptotes, and state the domain and the range of  $y = 8^{x+2} - 5$ . Be precise; I need to clearly see the y-intercept of the parent function. Describe the translation of  $y = 8^x$  to  $y = 8^{x+2} - 5$ .

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Translation: \_\_\_\_\_

\_\_\_\_\_

