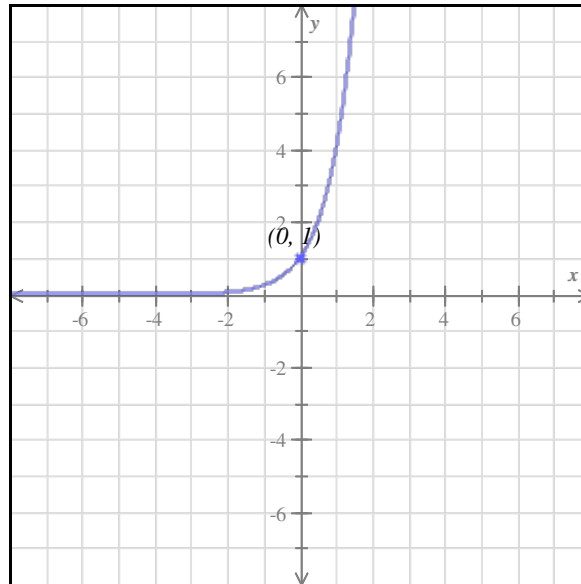Class Name : **MATH 1050/1051 Fall 2018**   Instructor Name : **Nguyen**

Student Name : _____   Instructor Note :

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1. Below is the graph of $y = 4^x$.

Translate it to become the graph of $y = 4^{x-3} - 1$.

2. Rewrite each equation as requested.

(a)   Rewrite as an exponential equation.

$$\log_3 \frac{1}{81} = -4$$

(b)   Rewrite as a logarithmic equation.

$$8^1 = 8$$

(a) $\square^{\square} = \square$

(b) $\log_{\square} \square = \square$

3. Rewrite each equation as requested.

(a) Rewrite as a logarithmic equation.

$$e^6 = y$$

(b) Rewrite as an exponential equation.

$$\ln x = 4$$

4. Evaluate each expression.

(a) $\log_6 \dfrac{1}{6} = \square$

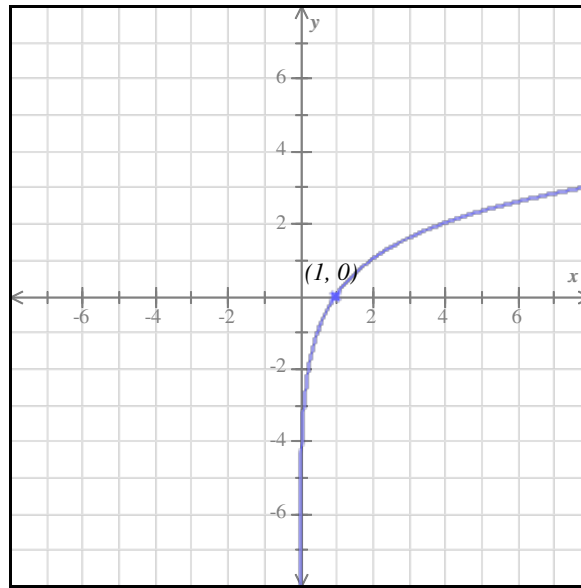(b) $\log_4 64 = \square$

5. Solve for x.

$$\log_{1000} x = \frac{1}{3}$$

Simplify your answer as much as possible.

6. Below is the graph of $y = \log_2 x$.

Translate it to become the graph of $y = \log_2(x - 1) + 2$.

7. Find the domain of the function.

$$f(x) = \log_3\left(1 - x^2\right)$$

Write your answer as an interval or union of intervals.

8. Fill in the missing values to make the equations true.

(a) $\log_9 7 + \log_9 4 = \log_9 \square$

(b) $\log_7 3 - \log_7 \square = \log_7 \dfrac{3}{8}$

(c) $\log_2 \dfrac{1}{81} = -4\log_2 \square$

9. Use the properties of logarithms to expand the following expression.

$$\log \sqrt{x y^7 z^3}$$

Each logarithm should involve only one variable and should not have any radicals or exponents.

You may assume that all variables are positive.

10. Write the expression as a single logarithm.

$$7\log_a (y-6) - 4\log_a (y+6)$$

11. Solve for x.

$$\log_2 (-3x+4)=4$$

12. Solve for x.

$$\log_2 (x+7) = 3 - \log_2 (x+5)$$

13. Solve for x.
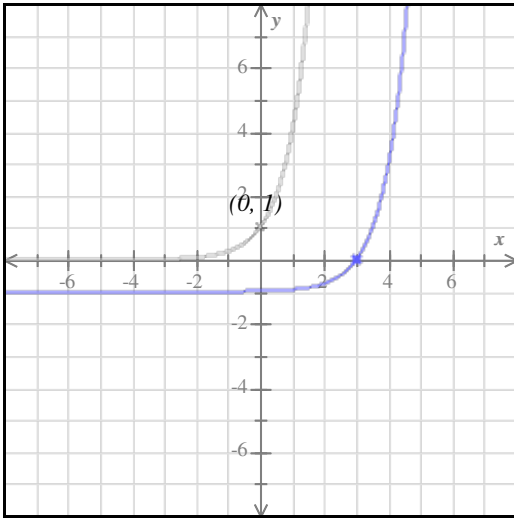
$$3^{12x} = 81^{2x+1}$$

14. Solve for x.

$$\log_2 (x+3) - \log_2 11 = \log_2 5$$

Obj. 9 #5 Answers for class MATH 1050/1051 Fall 2018

1.

2. (a) $3^{-4} = \dfrac{1}{81}$

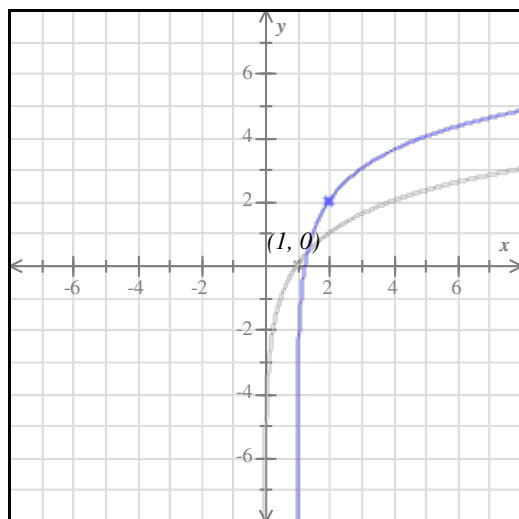(b) $\log_8 8 = 1$

3. (a) $\ln y = 6$

(b) $e^4 = x$

4.

(a) $\log_6 \dfrac{1}{6} = -1$

(b) $\log_4 64 = 3$

5. $x = 10$

6.

7. Domain: $(-1, 1)$

8.

(a) $\log_9 7 + \log_9 4 = \log_9 28$

(b) $\log_7 3 - \log_7 8 = \log_7 \dfrac{3}{8}$

(c) $\log_2 \dfrac{1}{81} = -4\log_2 3$

9. $\log \sqrt{x\,y^7 z^3} = \dfrac{1}{2}\log x + \dfrac{7}{2}\log y + \dfrac{3}{2}\log z$

10. $\log_a\left(\dfrac{(y-6)^7}{(y+6)^4} \right)$

11. $x = -4$

12. $x = -3$

13. $x = 1$

14. $x = 52$