MAC 1105, Spring 2018

Exam #4, ver A

April 16, 2018

Name _____

- You will be told when to begin the work and when to terminate work on the examination. You must stop when instructed. Points may be deducted in case of violations.
- Please show your work to support your answers that require calculations. Correct but unsupported answers may not be given full credit.
- The use of a cell phone or other electronic communication devices during the examination is not allowed. The exam will be canceled and a grade of "0" will be assigned to anyone who uses a cell phone during the examination or if one is found within hands reach.
- Calculators are not allowed on this exam.
- The exam consists of two parts. Part I contains five multiple choice questions worth 7 points each. Part II contains five open ended questions worth 15 points each.

Part I

Choose your answer from five available choices. No partial credit will be given for wrong answers.

1. Find the domain of $\log(x-3)$

   (a) (e, ∞)
   (b) $(-\infty, \infty)$
   (c) $(3, \infty)$
   (d) $[3, \infty)$
   (e) None of the above

2. Which of the following is an exponential function

   (a) $y = x^3$
   (b) $y = 2x - 1$
   (c) $y = 5^{x+3}$
   (d) $y = \frac{2x-1}{x^2+1}$
   (e) None of the above

3. The value of $\log_4(2)$ is

   (a) 1
   (b) 1/2
   (c) $\sqrt{2}$
   (d) 2
   (e) None of the above

4. The equivalent exponential form of the equation $\log_2(a) = 5$ is

   (a) $2^5 = a$
   (b) $2^a = 5$
   (c) $5^a = 2$
   (d) $5^2 = a$
   (e) None of the above

5. The expression $2\log(x) - \log(y) - 3\log(z)$ can be condensed to the following form.

   (a) $\log\left(\frac{2x}{yz^3}\right)$
   (b) $\frac{\log x^2}{\log(yz^3)}$
   (c) $\log\left(\frac{x^2z^3}{y}\right)$
   (d) $\log\left(\frac{x^2}{yz^3}\right)$
   (e) None of the above

Part II

6. Solve the equation.

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

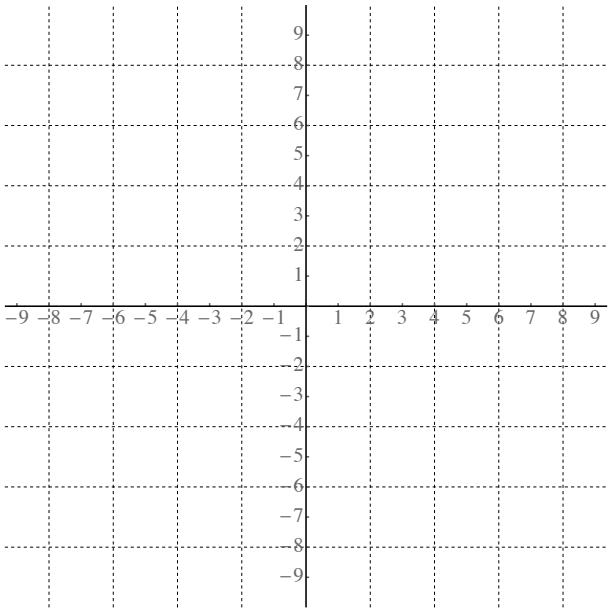
7. Solve the equation.

$$2 + e^{3x-1} = 4$$

8. Graph $y = \frac{1}{2} \cdot 3^{x+1} - 4$ using transformations. Start with the graph of a basic function – **plot accurately as least three points** and use them to perform transformations. Do one transformation at a time. Name the transformation and write the equation of the resulting function. Draw asymptotes.

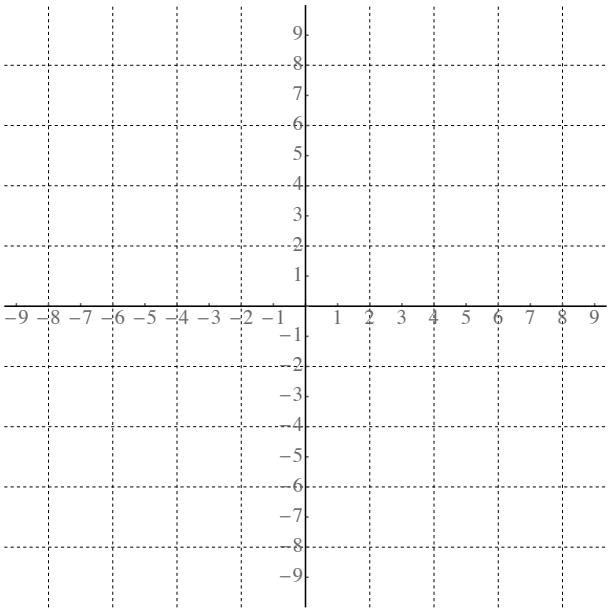
(i) Basic function:

y=



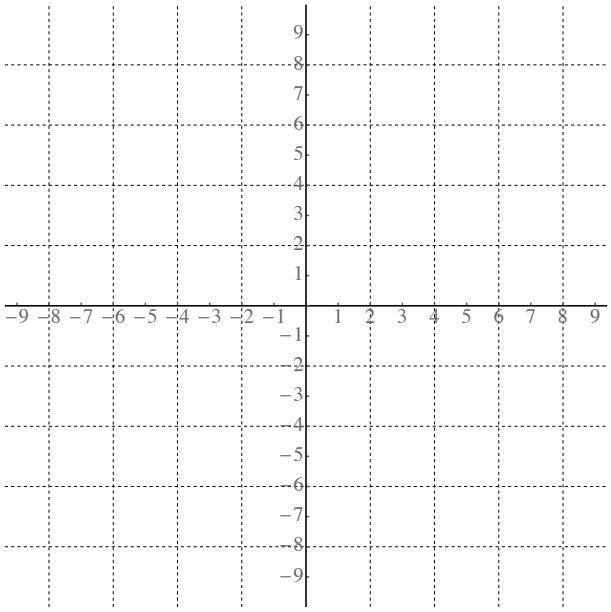
(ii) transformation:

y=



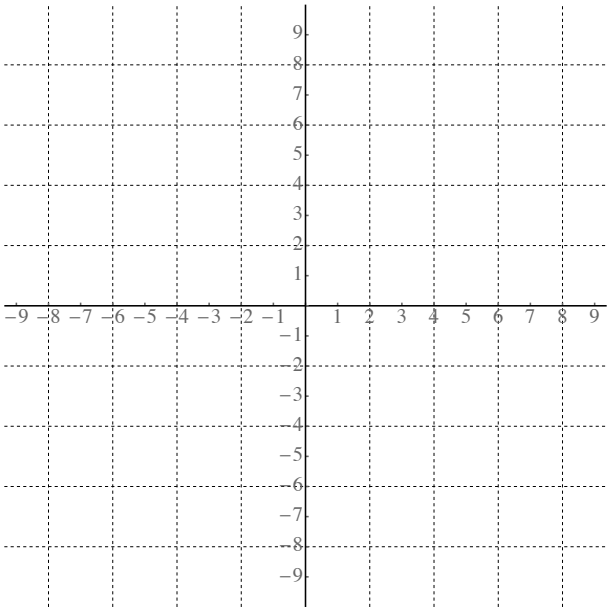
(iii) transformation:

y=



(iv) transformation:

y=



9. Solve the following inequality

   (a) $x^3 + 3x^2 \leq x + 3$

   (b) $\frac{x+1}{x+3} \geq 0$

10. (0 pts) How many hours in total did you study for this exam over the weekend?

    0 1 2 3 4 5 6 7 8 9 10 11 12 13 14+

11. (0 pts) Do you think that you could studied better? Yes No

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