

QUIZ 9 - MATH 111

Thursday, November 16

YOUR NAME: \_\_\_\_\_

George Voutsadakis

Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

- [4 points] Carefully write down the transformations leading from  $y = \log_2 x$  to  $y = \log_2 (7 - 2x) + 5$ . Then use the transformations to locate the new position of the vertical asymptote.

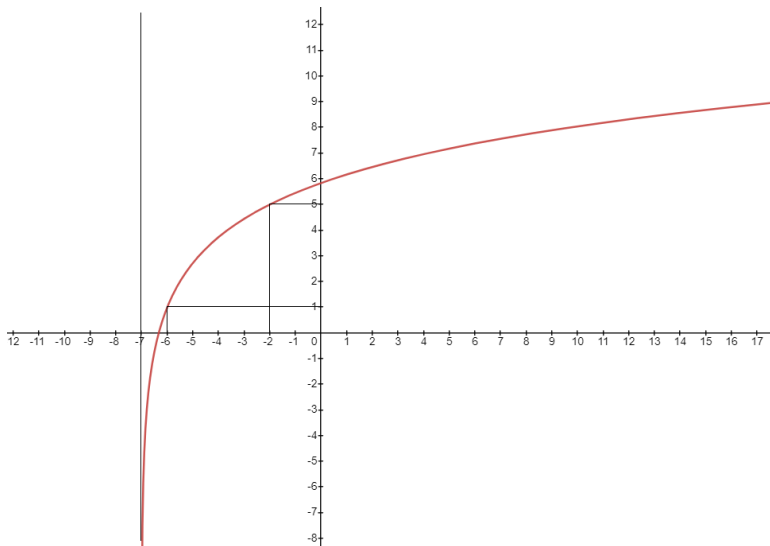
$$y = \log_2 x \longrightarrow ( \quad \quad \quad )$$

$$\longrightarrow ( \quad \quad \quad )$$

$$\longrightarrow ( \quad \quad \quad )$$

$$\longrightarrow y = \log_2 (7 - 2x) + 5 \quad ( \quad \quad \quad )$$

- [4 points] Find a formula for the function  $f(x)$ , which is a transform of  $y = \log_5 x$  and whose graph is shown below.



3. [4 points] In the first problem expand the given expression and in the second, contract the given expression. Follow the process step-by-step, using carefully all transformations needed.

(a)  $\ln\left(\frac{x(2x-7)^3}{\sqrt{y+1}}\right) =$

(b)  $7\log_7(x+5) - \frac{1}{2}\log_7(x-1) + 3\log_7(x+1) =$