

Grima MAT 151

Chapter 6 Practice Test

1)  $f(x) = x^2 - 2x + 1$      $g(x) = 7x - 5$

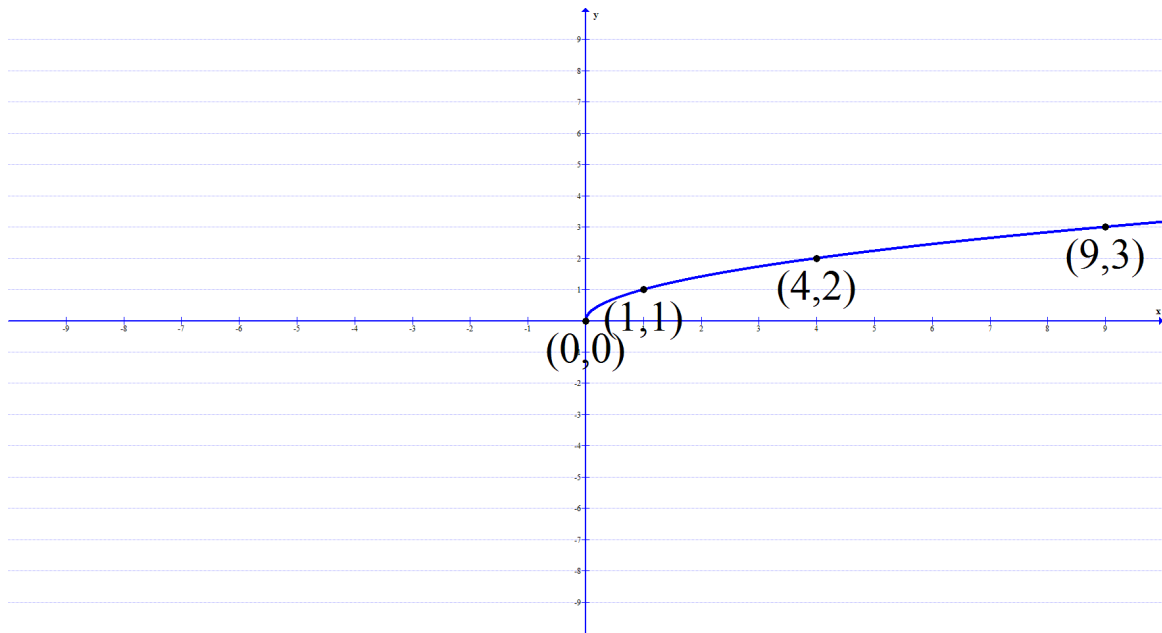
Find the following:

a)  $(g \circ f)(x)$

b) the domain of  $(g \circ f)(x)$

2) The graph of a one to one  $f$  function is given. Draw the graph of the inverse function  $f^{-1}$ .

(Just switch the  $x$  and  $y$  values of each point, plot the new points and connect them with the same shape.)



3)  $f(x) = x^3 + 4$

a) Find the inverse of  $f(x)$

b) Check your answer by showing that  $(f \circ f^{-1})(x) = x$

4)  $f(x) = e^x$

i) Find the requested function.

ii) Describe the transformation compared to  $f(x)$

Hint:

a)  $f(x - 2)$

b)  $f(x) + 4$

c)  $-f(x)$

d)  $f(x + 3) - 2$

#5-7: Solve

5)  $3^{x+2} = 81$

6)  $\left(\frac{1}{2}\right)^{x+1} = \frac{1}{16}$

7)  $4^{3x+1} \cdot 4^{2x-3} = 4^{18}$

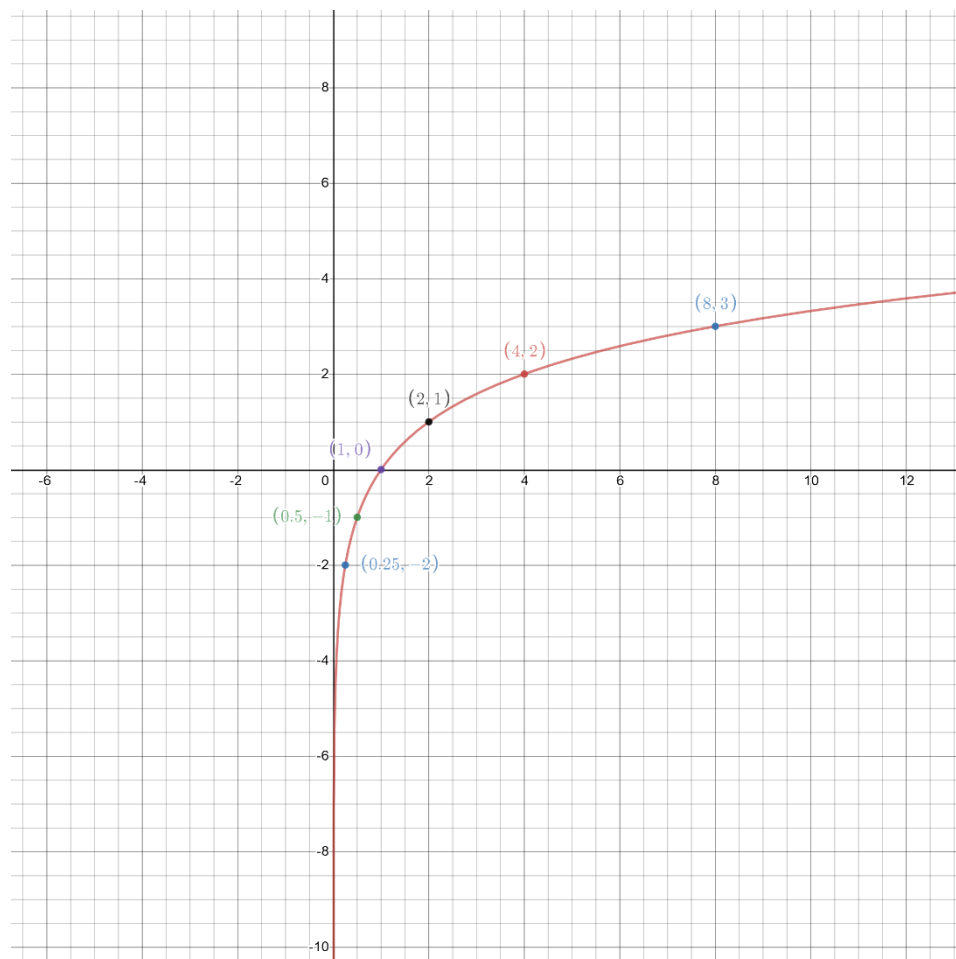
8 - 9: Let  $f(x) = \log_2(x)$

8)  $f(x + 1) + 3$

9)  $f(x - 3) - 2$

- a) Find the requested function.
- b) State the domain of function created in part a.
- c) Describe the transformation compared with  $f(x)$
- d) Graph the logarithmic function

Here is a graph of  $f(x) = \log_2(x)$  to help you out



Here are the points that are marked

x	f(x)
.25	-2
.5	-1
1	0
2	1
4	2

10) Write the expression as a single logarithm. Write your answer with only positive exponents.

$$2\log_3 x + 4 \log_3 y - 5\log_3 z$$

11) Expand into sums and differences of logarithms (express exponents as multiplication).

$$\log_3 \frac{x^2 y}{w^4 z}$$

#12-13: Solve the exponential equations, round your answer to 2 decimals.

12)  $3^x = 18$

13)  $3^{x-5} = 2$

#14-19: Solve the logarithmic equations, round to 2 decimals when needed.

14)  $\log_3 x = 4$

15)  $\ln x = 2$

16)  $\log_2(x+1) = 5$

17)  $\ln(4x-8) = \ln(3x-1)$

18)  $\log_2(x+2) - \log_2(x-2) = 1$

19)  $\log_2(x+2) + \log_2(x-2) = 5$