

Grima MAT 151

Chapter 6 Practice Test with hypothetical point values

1)  $f(x) = 2x - 3$  and  $g(x) = 4x + 7$  Find  $(g \circ f)(x)$  (3 points)

2)  $f(x) = x^3 - 6$  Find the following: (4 points each part, 8 total points)

a)  $f^{-1}(x)$       b)  $(f \circ f^{-1})(x)$

3)  $f(x) = e^x$  Find the following: (3 points each, 6 total points)

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

b) Describe the transformation of the graph in part "a" compared to the graph of  $f(x)$ .

4)  $f(x) = \log_2(x)$  (3 points each, 9 total points)

Find the following:

a)  $f(x + 5) - 3$

b) Describe the transformation of the graph in part "a" compared to the graph of  $f(x)$ .

c) State the domain of the function created in part a.

5) Solve  $3^{2x-8} = 81$  (5 points)  
points)

6) Solve  $\left(\frac{1}{2}\right)^{x-3} = 64$  (5

7) Solve  $3^{2x-1} \times 3^{x+3} = 3^{14}$  (5 points)

8) Write the expression as a single logarithm  $5\log_2x - 6\log_2y$  (5 points)

9) Expand into sums and differences of logs (express powers as coefficients). (5 points each)

a)  $\log \frac{x^3}{w^2}$       b)  $\log_5(x^3w^2)$

10) Use logarithms to solve  $5^x = 20$  (5 points)

11) Use logarithms to solve  $6^{x-1} = 12$  (5 points)

12) Write in exponential form, then solve  $\log_4(x + 1) = 2$  (5 points)

13) First rewrite as single logarithm Second write in exponential form Third Solve

Be sure to check your answer (8 points)

$$\log_3(x + 1) - \log_3(x - 5) = 1$$

14) First rewrite as single logarithm  
Second write in exponential form, Third Solve  
Be sure to check your answer (9 points)

$$\log_2(x + 1) + \log_2(x - 5) = 4$$

15) Solve  $\ln(x) = 1$  (write your answer with an "e" and not a decimal) (6 points)

16) Solve  $\log_5(x) = 2$  (6 points)