

Grima MAT 151

Chapter 6 – Extra Practice test

1)  $f(x) = 2x - 5$  and  $g(x) = 18x + 4$

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

2a)  $f(x) = x^3 - 4$

Find the following:

i)  $f^{-1}(x)$

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

2b)  $f(x) = \sqrt[3]{x - 7}$

Find the following:

i)  $f^{-1}(x)$

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

3a)  $f(x) = e^x$

Find the following:

i)  $f(x - 8) + 7$

ii) Describe the transformation of the graph in part “i” compared to the graph of  $f(x)$ .

3b)  $f(x) = e^x$

Find the following:

i)  $f(x + 5) - 2$

ii) Describe the transformation of the graph in part “i” compared to the graph of  $f(x)$ .

4a)  $f(x) = \log_2(x)$

Find the following:

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

ii) Describe the transformation of the graph in part “i” compared to the graph of  $f(x)$ .

iii) State the domain of the function created in part i.

4b)  $f(x) = \log_2(x)$

Find the following:

i)  $f(x + 5) - 4$

ii) Describe the transformation of the graph in part “i” compared to the graph of  $f(x)$ .

iii) State the domain of the function created in part i.

4c)  $f(x) = \log_2(x)$

Find the following:

i)  $f(x + 3) + 6$

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

iii) State the domain of the function created in part i.

5a) Solve  $2^{2x-9} = 32$

5b) Solve  $3^{x-2} = 81$

6) Solve  $\left(\frac{1}{5}\right)^{x+4} = 25$

7) Solve  $7^{4x-5} \times 7^{x+6} = 7^6$

8) Write the expression as a single logarithm

a)  $3\log_2 x - 5\log_2 y$

b)  $3\log_2 x + 5\log_2 y$

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

a)  $\log \frac{x^3}{y^4}$       b)  $\log_3(x^2 y^4)$

10) Use logarithms to solve  $8^x = 24$

11) Use logarithms to solve  $2^{x-3} = 20$

12) Write in exponential form, then solve  $\log_3(x - 1) = 4$

13) First rewrite as single logarithm

Second write in exponential form

Third Solve

Be sure to check your answer

$$\log_3(2x + 7) - \log_3(x - 7) = 2$$

14) First rewrite as single logarithm

Second write in exponential form

Third Solve

Be sure to check your answer

$$\log_2(x + 2) + \log_2(x - 4) = 4$$

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

16) Solve  $\log_3(x) = 5$