

Abedi, Spring 2011

Pretest 1

1. Find a formula for the inverse of $f(x) = e^x + 2$. i) Graph both the function f and f^{-1} .
 ii) What is $f^{-1}(3)$? iii) f is odd, even, or neither-----
2. A function is given by a table of values. i) Is the function one-to-one.-----

x	4	5	6	7	8	
$f(x)$	20	41	65	79	100	

- i) Use regressions to find a model for the above function and approximate $f(10)$.

Linear Regression..... $f(10)$

3. Find the domain of $f(x) = \frac{x+2}{\sqrt{x-4}}$. -----

What is the value of $f(6)$?----- What are(is) x -intercepts of f -----

4. Let $f(x) = x^2 + 2x$ and $g(x) = \sqrt{x} + 3$. Find each of the following functions and its domain.

a) $\frac{f}{g}$ -----, Domain of $\frac{f}{g}$ -----

b) $g \circ f$ -----, domain of $g \circ f$ -----

5. Sketch the graph of $y = 2 + \sin^2 x$.

6. The doubling time of certain bacteria is approximately 5 hours. Suppose that there are initially 80 bacteria i) What is the size population after t hours. ii) Estimate the size of population after 8 hours. iii) Estimate the time for the population to reach 140.

7. Find the exact value of each of the following.

a) $\ln(\ln e^{-4})$ ----- b) $\log_{64} \frac{1}{8}$ ----- c) $\ln e^{8\pi^2}$ ----- d) $5^{\log_5 2x}$ -----

8. Solve the equation $e^{5x+8} = 40$.

9. Express the function $f(x) = \sin^3(\sqrt{x})$ in the form $g \circ h$.

10. Refer to the function $y = f(x)$ to your right.

i) Domain of $f =$

ii) Range of $f =$

iii) $f(0) =$ $f(6) =$

iv) For what value(s) of x , $f(x) = -3$

v) On what interval(s) the function is increasing?

vi) On what interval(s) the function is decreasing?

