CHAPTER 1 TEST

No calculators, no cell phones, organic brain activity only.

Math 231
September 19, 2008

Name: _____
By printing my name I pledge to uphold the honor code.

1. Fill in the blanks with points in coordinate notation, given that the the point $(2, 3)$ is on the graph of $f(x)$.

_____ is on the graph of $f(x) + 2$

_____ is on the graph of $3f(x)$

_____ is on the graph of $f(x + 2)$

_____ is on the graph of $f(3x)$

_____ is on the graph of $f^{-1}(x)$

_____ is also on the graph if f is even

2. Complete each of the following definitions.

A function f is *one-to-one* if:

A function f is a *power function* if:

A function f is an *odd function* if:

3. Assuming that f is a linear function, deduce the missing values in the table.

x	1	3		7	
$f(x)$	1	-5	-8		-23

4. Use the values given in the table to deduce the missing values.

x	$f(x)$	$g(x)$	$(f - g)(x)$	$(f \circ g)(x)$
1	1	2		
2	3		2	
3		3		2

5. What types of functions are these? Circle ALL that apply for each function. Circle NONE if none of the options apply.

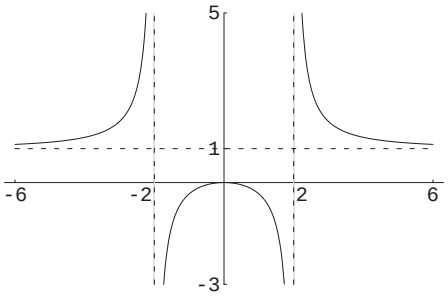
$f(x) = 3^x$ algebraic / linear / polynomial / power / rational / NONE

$g(x) = 42\pi^3 - x$ algebraic / linear / polynomial / power / rational / NONE

$h(x) = \dfrac{x^2 - 1}{\sqrt{x} + 1}$ algebraic / linear / polynomial / power / rational / NONE

$k(x) = 3x^5 + 2x^{-1}$ algebraic / linear / polynomial / power / rational / NONE

6. The graph of a function f is given below. List the appropriate information (write NONE if none exist). Be sure to use interval notation for the last three parts.



domain of f:

local maximums occur at:

local minimums occur at:

global maximums occur at:

asymptotes of f:

f is positive here:

f is negative here:

f is concave up here:

7. Given the function $f(x) = \dfrac{\sqrt{x+1}}{4-x}$, find the following.

$f(2) =$

$f(x-1) =$

Domain(f) =

(AROC of f on $[0, 2]$) =