Name: _____ Date: _____

Review Homework: Functions!

1) Fill in the table below for each INPUT-OUTPUT rule.

In	Out
0	-2
1	1
2	4
3	7

OUTPUT = 3*INPUT – 2

$3(0)-2$
$0-2=-2$

$3(1)-2$
$3-2=1$

$3(2)-2=4$
$3(3)-2=7$

2) Find the first 4 terms in the sequence given:

Initial value = 3 NEXT = 2*(NOW) – 4

a. 3, 2, 0, -4, -12, -26
(1, 2, 3, 4, 5)

b. Find the sixth term: -56
(6)

$2(3)-4$
$2(2)-4$
$2(0)-4$
$2(-4)-4$
$2(-12)-4$
$2(-26)-4$

3) Find the third term in the sequence: $a_n = 3a_{n-1} + 1$ and $a_0 = -2$. a_3 = -41

$a_1 = 3(-2)+1 = -5$ $a_2 = 3(-5)+1 = -14$ $a_3 = 3(-14)+1$

4) Write the NOW-NEXT RULE, Formal Recursive, and the INPUT-OUTPUT rule for each table.

x	y
1	3
2	4
3	5
4	6
5	7

+1, +1, +1, +1

NOW
NEXT

NOW-NEXT rule: Next = Now + 1

Formal Recursive rule: $a_n = a_{n-1} + 1$

(Hint: Use a_n and a_{n-1})

INPUT-OUTPUT rule: OUTPUT = INPUT + 2

x	y
1	4
2	8
3	12
4	16
5	20

+4, +4, +4, +4

NOW-NEXT rule: Next = Now + 4

Formal Recursive rule: $a_n = a_{n-1} + 4$

(Hint: Use a_n and a_{n-1})

INPUT-OUTPUT rule: OUTPUT = INPUT * 4

5. What is the formal recursive form for the following sequence: 4, -32, 256, -2048, … (Circle one)

a. $a_n = a_{n-1} - 36$ (b.) $a_n = -8a_{n-1}$ c. $a_n = -4a_{n-1}$ d. $a_n = a_{n-1} \div -8$

6. Given $a_1 = 5$ and the recursive equation $a_n = -2a_{n-1} + 5$, find the first 3 terms of the sequence.

a_1: 5 a_2: -5 a_3: 15

$-2(5)+5$ $-2(-5)+5$

7. What is the correct Input-Output formula (using x and y) for the table: (Circle one)

a. $y = 5x$ (b.) $y = x + 5$ c. $y = x - 1$ d. $y = x + 1$

X	Y
0	5
1	6
2	7

8. Identify the domain and range and determine if it is a function:

1.

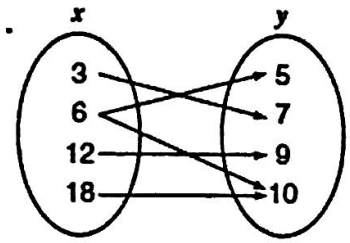
x	y
2	−3
−1	0
5	5
3	2
2	1

Function? NO

Domain: −1, 2, 3, 5

Range: −3, 0, 1, 2, 5

2.

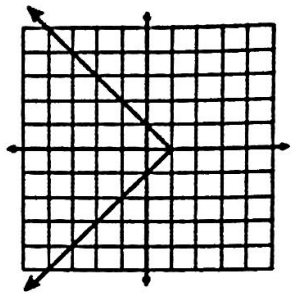


Function? NO

Domain: 3, 6, 12, 18

Range: 5, 7, 9, 10

3.



Function? NO

Domain: $x \leq 1$

Range: all real #s

9. $f(x) = x + 7$

a. $f(5)$ $5+7=$ **12**

b. $f(-1)$ $-1+7=$ **6**

c. $f(-3)$ $-3+7=$ **4**

d. Find x if f(x)=-1 $-1 = x+7$

$-7 \quad -7$

$-8 = x$

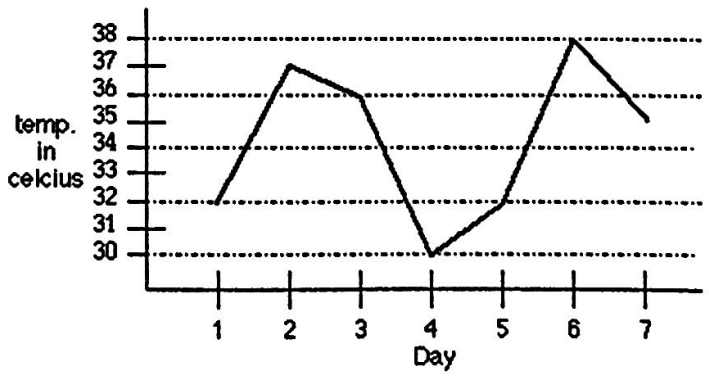
10. Given $2x^2 - 1$, find f(-3).

$2(-3)^2 - 1$

$2(9) - 1$

$18 - 1 =$ **17**

11. Identify the following:



a. Independent Variable: Day

b. Dependent Variable: temperature

c. Domain: $1 \leq x \leq 7$

d. Range: $30 \leq y \leq 38$

e. Increasing: $1 \leq x \leq 2$, $4 \leq x \leq 6$

f. decreasing: $2 \leq x \leq 4$, $6 \leq x \leq 7$

g. constant: NONE

h. Find f(2): 37°

i. Find x when f(x)=38: 6 (Day #6)