Math 1 Unit 2 Review Sheet Name: _____

Write the Now-Next Rule & the Formal Recursive Notation for the following recursive patterns, then give the 12th term in the sequence. (6 mins)

1. $-5, -7.5, -10, -12.5, -15 \ldots$

Now-Next Rule: Next = Now − 2.5 Formal: $a_n = a_{n-1} - 2.5$ 7th term: −20

2. $-16, -10, -4, 2, 8, \ldots$

Now-Next Rule: Next = Now + 6 Formal: $a_n = a_{n-1} + 6$ 7th term: 20

3. $3, 6, 12, 24, 48, \ldots$

Now-Next Rule: Next = Now · 2 Formal: $a_n = a_{n-1} \cdot 2$ 7th term: 192

4. $2, -4, 8, -16, 32, \ldots$

Now-Next Rule: Next = Now · −2 Formal: $a_n = -2a_{n-1}$ 7th term: 128

Write the Now-Next and Input-Output rule for each of the following tables. (3 min)

5.

IN → OUT

x	y
0	0
1	−3
2	−6
3	−9

} NOW-NEXT

Now-Next: Next = Now − 3

Input-Output: OUT = −3 · IN

6.

IN → OUT

x	y
0	−1
1	2
2	5
3	8

Now-Next: Next = Now

Input-Output: OUT = 3 · IN − 1

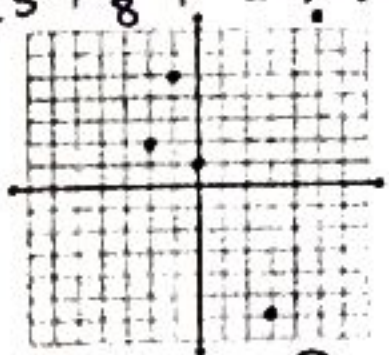
Express each of the following relations as a table and a graph. Then identify the domain and range.

7. {(−2,2), (−1,5), (0,1), (3, −6), (5, 8)}

x	y
−2	2
−1	5
0	1
3	−6
5	8

Domain: −2, −1, 0, 3, 5

Range: 2, 5, 1, −6, 8



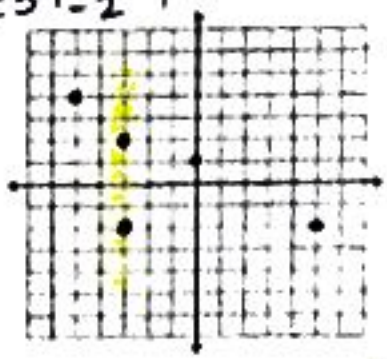
Is this relation a function? (Yes) or No

8. {(−5,4), (−3,2), (0,1), (5, −2), (−5, −2)}

x	y
−5	4
−3	2
0	1
5	−2
−5	−2

Domain: −5, −3, 0, 5

Range: 4, 2, 1, −2



Is this relation a function? Yes or (No)

Given $f(x) = -3x + 2$ and $g(x) = \frac{1}{2}x - 4$, find each of the following.

9. $f(-4)$

$-3(-4)+2$

$12+2 = 14$

10. $f(4)$

$-3(4)+2$

-10

11. $g(-5)$

$\frac{1}{2}(-5)-4$

$-2.5-4$

-6.5

12. $g(5)$

$\frac{1}{2}(5)-4$

$2.5-4$

-1.5

13. Find x if $f(x) = 9.5$

$9.5 = -3x+2$

$-2 \quad -2$

$\frac{7.5}{-3} = \frac{-3x}{-3}$

$-2.5 = x$

14. $f(-4) - g(-5)$

$-3(-4)+2 \quad \frac{1}{2}(-5)-4$

$14 - -6.5$

20.5

15. If Output = -4 *Input + 3, fill in the table.

INPUT	OUTPUT
-2	11
-1	7
0	3
1	-1
2	-5

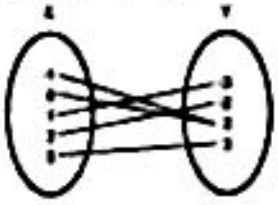
$-4(-2)+3$

$-4(-1)+3$

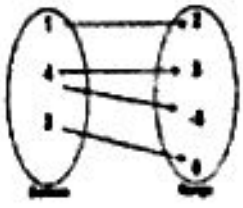
$-4+3$

$-4(2)+3$

16. Decide if each relation is a function. Circle your answer.



a.) Function: (Yes) No



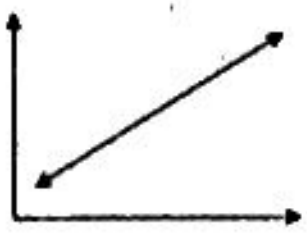
b.) Function: Yes (No)

{(0, −2), (2, 4), (4, 7), (2, −3)}

c.) Function: Yes (No)

X	Y
-3	19
8	10
5	12
-6	27
8	10

d.) Function: Yes (No)



e.) Function: (Yes) No

f.) Function: Yes (No)

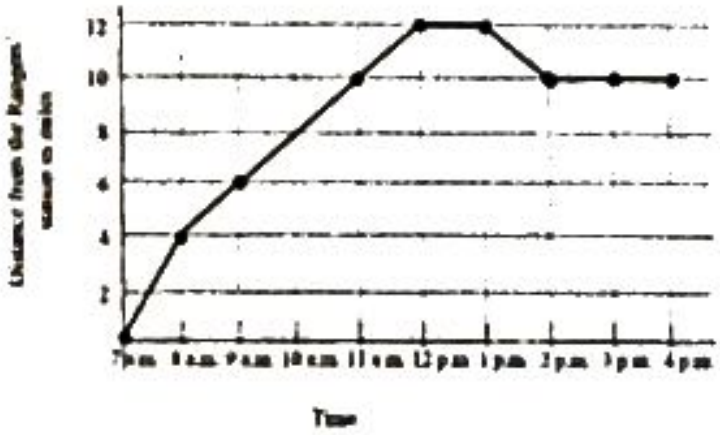
17. Given the graph of the distance from a Ranger's station (in miles) while hiking in the Smokies.

What is the dependent variable in this graph? distance (miles)

Using inequality notation, list the domain, range and when the function is increasing, decreasing, and constant:

Domain: 7am to 4pm Range: $0 \leq y \leq 12$

Hiking in the Smokies



Increasing: ● $7am \leq x \leq 12pm$

Decreasing: $1pm \leq x \leq 2pm$

Constant: $12pm \leq x \leq 1pm$ AND $2pm \leq x \leq 4pm$

What is the distance at 11 AM?

10

Approximately how long will it take to be 8 miles away?

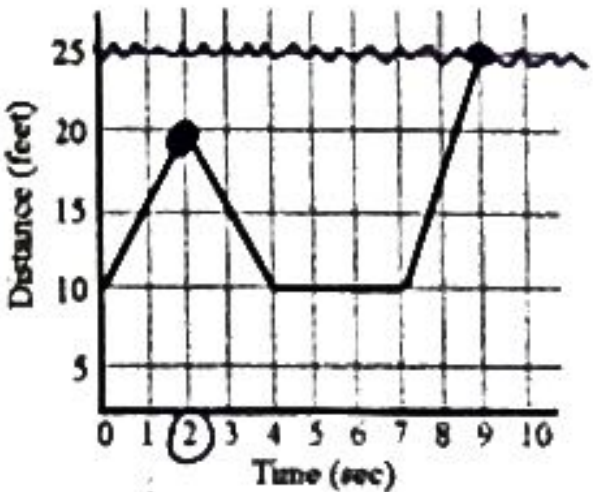
3 hours (7am to 10am)

18. Ms. Eman's dog Lulu is walking in the backyard.

a. During what time interval does Molly walk back towards the house? $2 \leq x \leq 4$

b. During what time interval does Molly sit and stare at a squirrel? $4 \leq x \leq 7$

c. Find f(2): 20 d. Find x if $f(x)=25$: 9

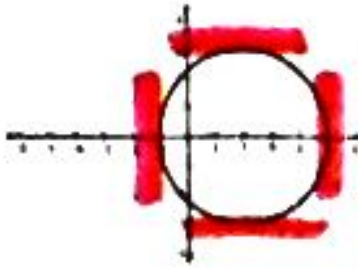


* (19.) Find the domain and range:

a. Domain $0 \leq x$

Range: All Real #s

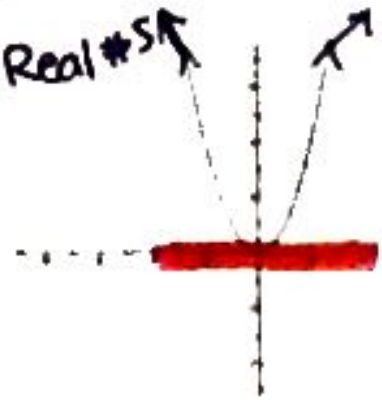
b.



D: $-4 \leq x \leq 5$

R: $-3 \leq y \leq 3$

c.



Domain: ● All Real #s

Range: $0 \leq y$