Advanced Algebra
Homework 2.1
Functions

Name _____

Period _____

SHOW ALL WORK.

Complete Parts A & B OR Parts B & C

PART A:

Evaluate the function for the given value of x.

1. $f(x) = x + 15;\ f(8)$

2. $f(x) = x^2 + 1;\ f(-3)$

3. $f(x) = |x| + 10;\ f(-4)$

PART B:

a) Identify the domain and range of the given relation.
b) Does the relation represent a function?

4. (-2, 3), (1, 2), (3, -1), (-4, -3)

5. (6, -1), (-2, -3), (1, 8), (-2, 5)

6. (5, 20), (10, 20), (15, 30), (20, 30)

7. ***Multiple Choice*** *f(x)* = {(-6, 3), (-2, 4), (1, 5), (4, 0)} Which ordered pair can be added to *f(x)* so that the relation is still a function.

a. (1, -5) **b.** (6, 3) **c.** (-2, 19) **d.** (4, 4)

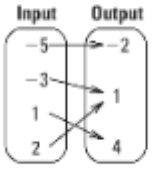
Evaluate the function for the given value of x.

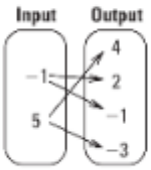
8. $f(x) = 6;\ f(2)$

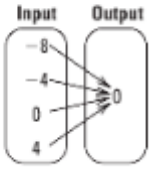
9. $g(x) = x^3 - 2x^2 + 5x - 8;\ g(-5)$

10. $h(x) = 7 - \frac{2}{3}x;\ h(15);\ h(a-6)$

Tell whether the relation represents a function. Explain.

11. 

12. 

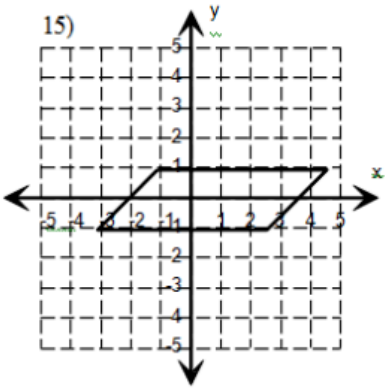
13. 

14. Describe and correct the error.

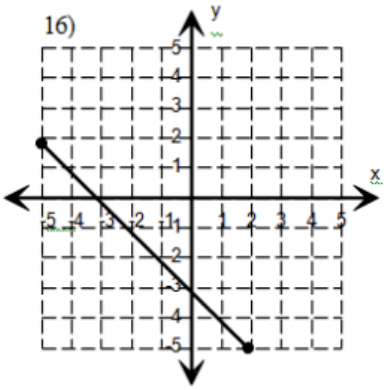
x	0	1	2	1	0
y	5	6	7	8	9

The relation given by the table is a function because there is only one value of x for each value of y.

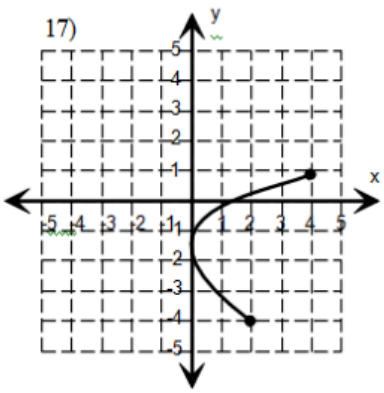
Use the Vertical Line Test to determine if the relation is a function.

15) 

☐ Function
☐ Not a Function

16) 

☐ Function
☐ Not a Function

17) 

☐ Function
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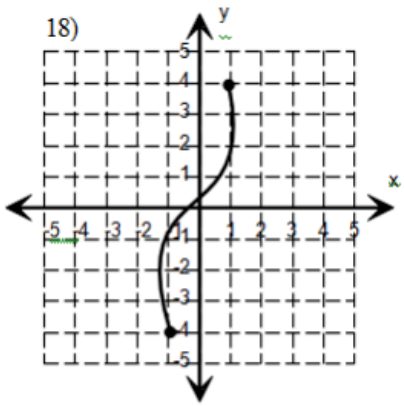
18) 

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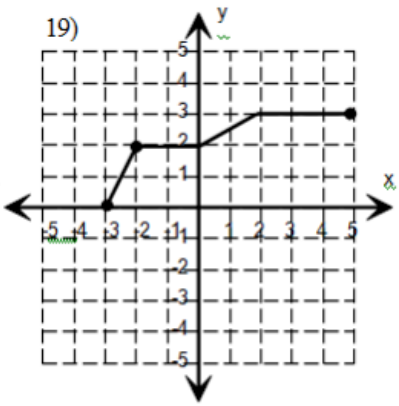
19) 

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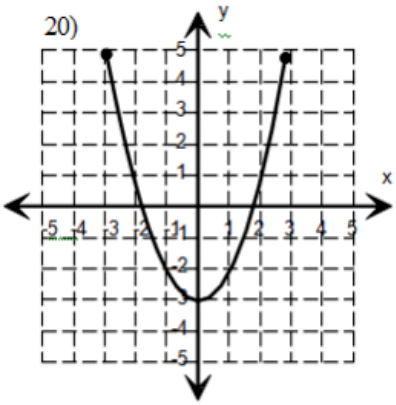
20) 

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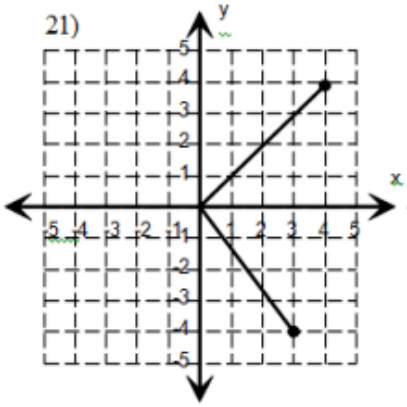
21)



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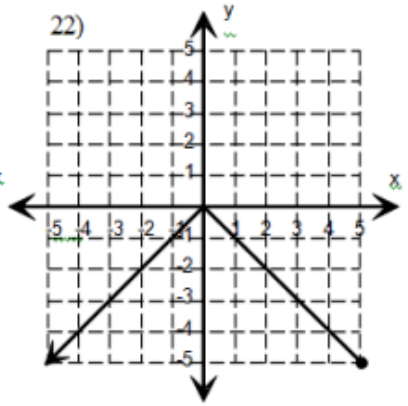

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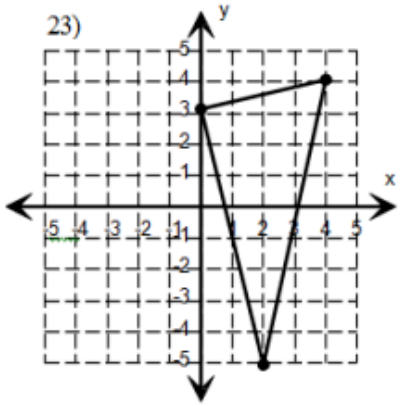
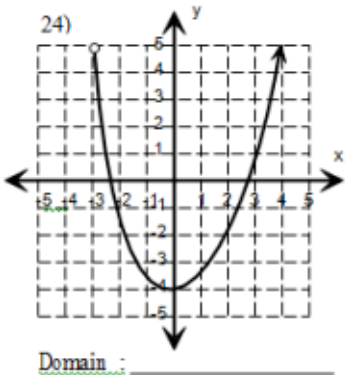


☐ Function
☐ Not a Function

Find the Domain and Range for each graph.

24)



Domain : _____
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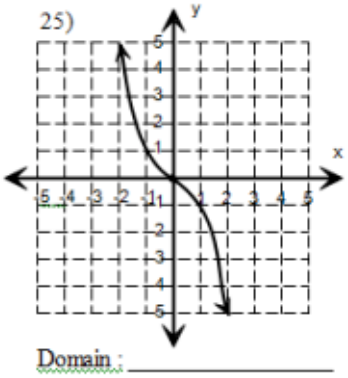

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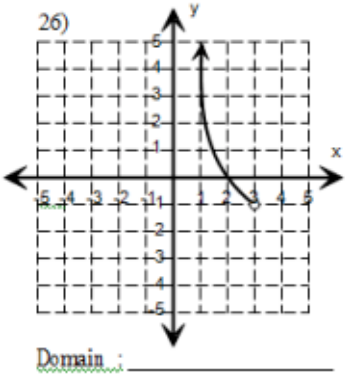

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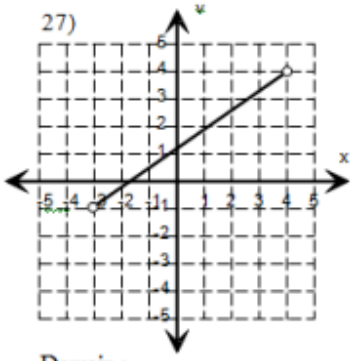

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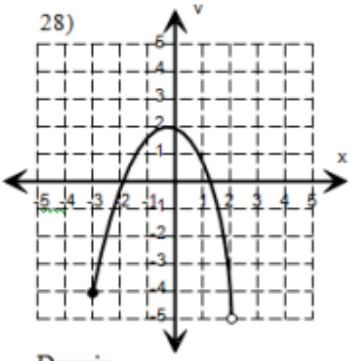

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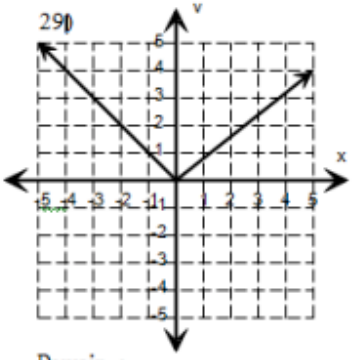

Domain : _____
Range : _____

PART C:

30. Let f be a function such that $f(a + b) = f(a) + f(b)$ for all real numbers a and b. Show that $f(2a) = 2 \cdot f(a)$ and that $f(0) = 0$.