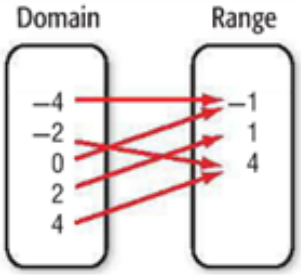
Name Period

Int2Acc **HW 4-1**
Domain & Range – Function Notation **Unit 4**

#1-2: Determine whether the relation is a function. Write the relation or function as a set of ordered pairs.

1.



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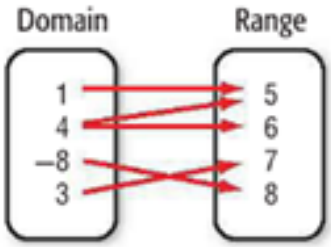


#3-6: Determine whether the set shown is a function. List the domain and range in set notation.

3. $\{(2,2),(-1,5),(5,2),(2,-4)\}$

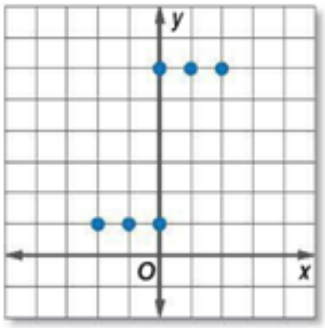
4. $\{(1,6),(-1,6),(3,8),(-3,8)\}$

5. $\{(4,5),(3,-2),(-2,5),(4,7)\}$

6. $\{(5,-7),(6,-7),(-8,-1),(0,-1)\}$

#7-8: Determine whether the graph represents a function. If no, explain.

7.



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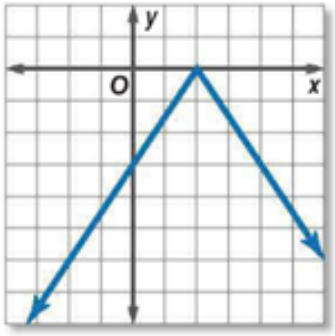
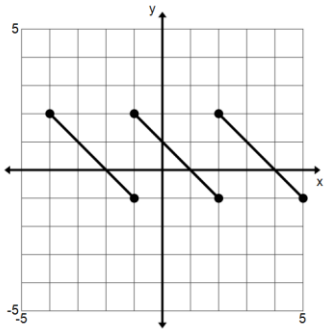


#9-14: Determine whether the graph represents a function. If no, explain.

9.



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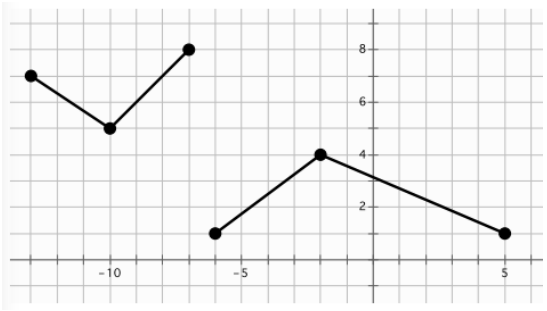

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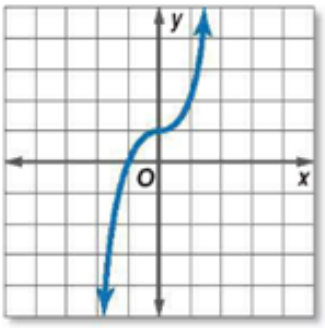

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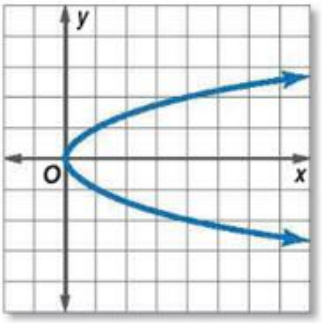
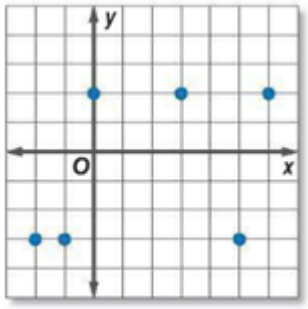
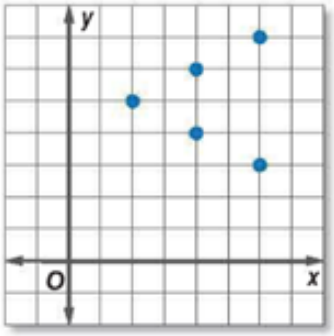


13.



14.



15. Create a mapping for the graph in #13.

16. Create a mapping for the graph in #14.

17. Create a mapping for the table shown and determine if it is a function.

x	*y*
-4	2
3	-5
4	2
9	-7
-3	-5

18. Evaluate $f(x) = 3x + 1$ given the inputs $\{-1, 0, 1, 2\}$.

19. Evaluate $r(x) = 2x - 1$ given the inputs $\{-3, -1, 1, 3\}$.

20. Evaluate $f(x) = x^2 + 3$ given the inputs $\{-2, 0, 1, 2\}$.

21. Evaluate $g(x) = 4^x$ given the inputs $\{-3, 0, 2, 3\}$.

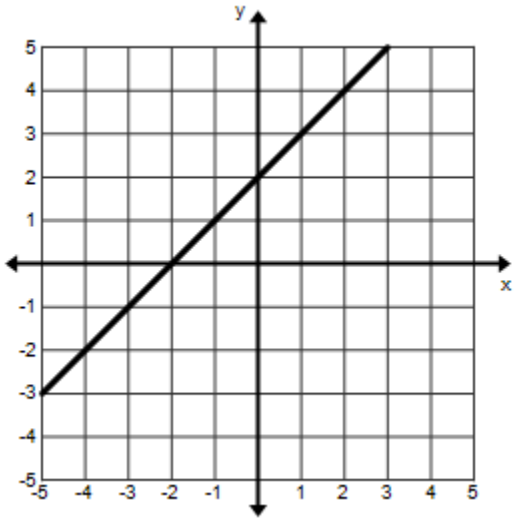
22. Given the table below, what is $f(-1)$?

x	$f(x)$
-2	6
-1	4
0	0
1	-1

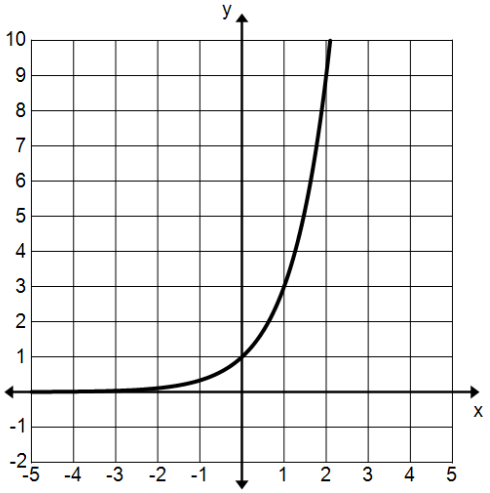
23. Given the table below, what is $f(0)$?

x	$f(x)$
-2	0
-1	9
0	15
1	23

24. Given the graph below, what is $f(-1)$?



25. Given the graph below, what is $f(1)$?



#26-31: Use $f(x) = 6x + 7$ and $g(x) = x^2 - 4$ to answer each of the following.

26. $f(-3) = ?$

27. $f(4) = ?$

28. $g(5) = ?$

29. $g(-2) = ?$

30. $f(x) = 7 \quad x = ?$

31. $f(x) = -23 \quad x = ?$

#32-35: For each function, evaluate $f(0)$, $f(1.5)$, and $f(-4)$.

32. $f(x) = 3x - 4$

33. $f(x) = x^2 + x$

34. $f(x) = -2x^2 + 1$

35. $f(x) = 5^x + 7$

36. a. A sucessful company is consistently hiring 1 new employee each month. The company started with 2 employees. The growth of the company can be modeled with the function $g(x) = x + 2$ (where x is the amount of months that have passed). Evaluate the function given domain $\{3, 6, 18, 24\}$.

b. If given, $g(3) = 5$ complete the following sentence:

After _____ _____, there are _____ _____.

37. a. A population of insects doubles every 3 days. The population started with 8 insects. The function that models this growth is $f(x) = 8(2)^{x/3}$. Evaluate the function over the domain $\{0, 3, 6, 12\}$.

b. If given, $f(3) = 16$ complete the following sentence:

After _____ _____, there are _____ _____.

38. a. An investment promises a return of 12% per year. Brody wants to figure out how much money he will have if he invests $1,000 for 5, 10, or 15 years. The investment's growth can be modeled using the function $f(x) = 1000(1.12)^x$. Write three statements using function notation that evaluate the function given each time frame Brody wants to know about.

b. If given $f(15) = 5473.57$, complete the following sentence:

After _____ _____, there is _____ _____.

39. The value of Steven's car decreases by $2,000 per year. The function that will calculate the value of the car is, $V(t) = 15000 - 2000t$ where t is the years he has owned the car. Which of the following represents that in 2 years the car will be worth $11000?

A. $V(t) = 11000$ **B.** $V(2) = 11000$ **C.** $V(11000) = 2$ **D.** $V(11000) = t$

40. Jason is running a lemonade stand. He is really good at math, so he figured out a function that would help him calculate his profit based on how many drinks he sells (*s*). The function is $P(s) = 0.5s - 10$. Which of the following represents how much his profit will be when he sells 30 drinks?

A. $P(s) = 15$ **B.** $P(30) = 15$ **C.** $P(s) = 5$ **D.** $P(30) = 5$

41. The value of Leah's home increases every year. The value can be calculated using the following function $V(t) = 125,000(1.02)^t$ where *t* is the number of years she has owned the home. Which of the following represents the value of her home after 10 years?

A. $V(t) = 10$ **B.** $V(10) = 152,374$ **C.** $V(t) = 152,374$ **D.** $V(152,374) = 10$

42. The function that will calcualte your cell phone bill, based on your number of minutes (*m*) is $B(m) = 0.25m + 32$. Which of the following represents the bill if you talked for 100 minutes?

A. $B(100) = 25$ **B.** $B(25) = 100$ **C.** $B(100) = 57$ **D.** $B(57) = 100$