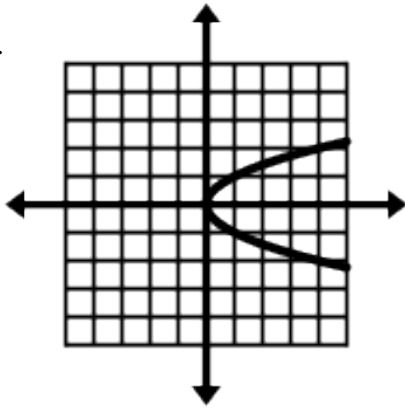
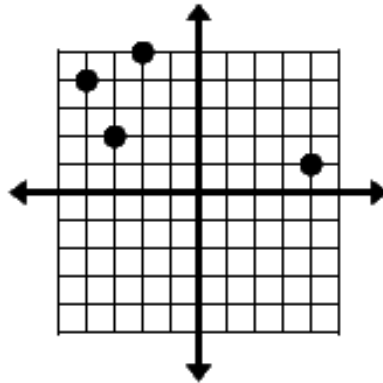


#1-6: Determine if each of the following is a function. If no, explain.

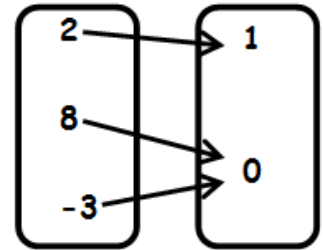
1.



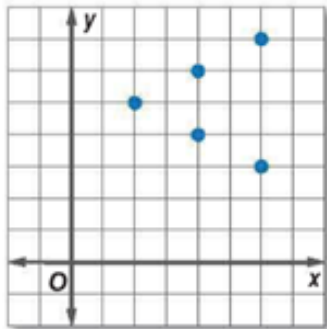
2.



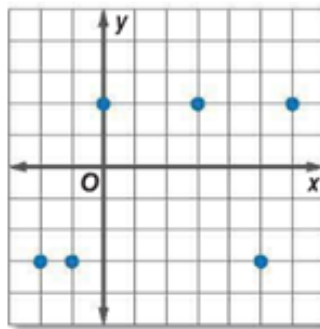
3.



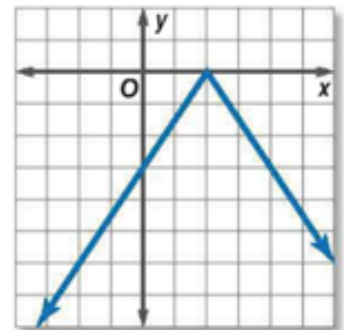
4.



5.

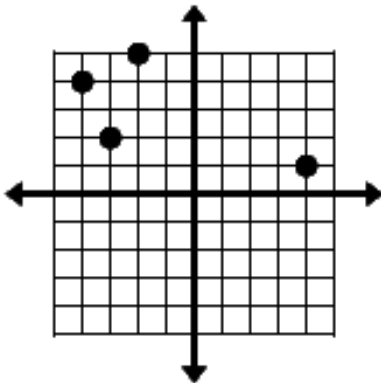


6.

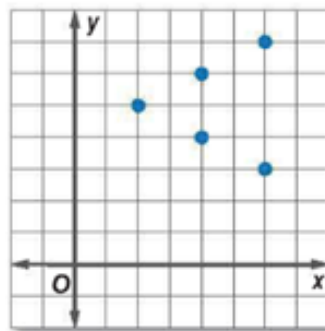


#7-9: Determine the domain and range for each of the following.

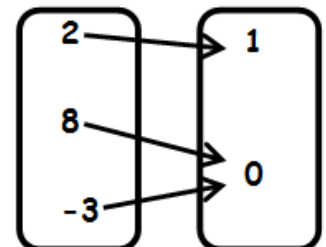
7.



8.



9.



10. Mark if each of the following is true or false about the domain of functions.

- _____ It is the set of all dependent values.
- _____ It is the set of all independent values.
- _____ It is the input values.
- _____ It is the output values.
- _____ It is always smaller than the range.
- _____ It is always bigger than the range.
- _____ It never has a repeating number in it.

12. Create a mapping for #7.

11. Mark if each of the following is true or false about the range of functions.

- _____ It is the set of all dependent values.
- _____ It is the set of all independent values.
- _____ It is the input values.
- _____ It is the output values.
- _____ It is always smaller than the domain.
- _____ It is always bigger than the domain.
- _____ It never has a repeating number in it.

13. Create a mapping for #8.

14. Create a mapping for $\{(4,5), (3,-2), (-2,5), (4,7)\}$ and determine if it is a function.

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

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

17. If $f(x) = 4^x + 10$, what is $f(0)$?

18. If $g(x) = 5x^3 + 2$, what is $g(1.5)$?

#19-30: Let $f(x) = 2x$, $g(x) = 4x + 20$, $k(x) = 18$, $j(x) = 16x + 12$ and $h(x) = 12x$

19. $(f + h)(x) =$

20. $\left(\frac{g}{f}\right)(x) =$

21. $-2[h(x)] =$

22. $3[(f + j)(x)] - 6 =$

23. $(f - g)(x) =$

24. $(f \bullet g)(x) =$

25. $(j - g)(x) =$

26. $(g - f)(x) =$

27. $\left(\frac{k}{f}\right)(x) =$

28. $\left(\frac{j}{g}\right)(x) =$

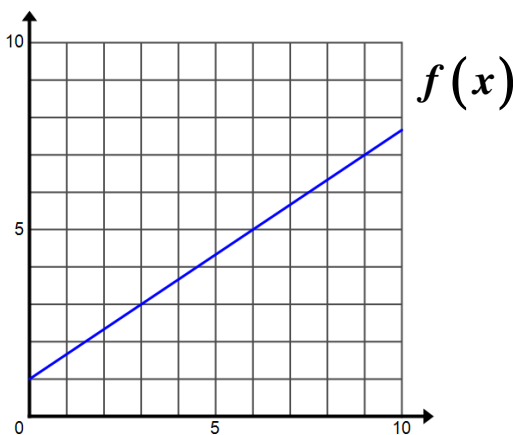
29. $\left(\frac{g}{h}\right)(x) =$

30. $\left(\frac{h}{k}\right)(x) =$

31. The function $f(t) = 500(1.05)^t$ estimates the number of computers (in thousands) in America after the year 2000, where t is the number of years since 2000. If $f(14) = 990$, fill in the blanks below.

After _____, there are _____.

#32-35: The following graph and table are models of the same function. Use them to answer the following.



| x | y |
|-----|----------------|
| 1 | $\frac{5}{3}$ |
| 2 | $\frac{7}{3}$ |
| 4 | $\frac{11}{3}$ |
| 5 | $\frac{13}{3}$ |
| 7 | $\frac{17}{3}$ |
| 8 | $\frac{19}{3}$ |
| 10 | $\frac{23}{3}$ |

32. $f(2) =$

33. $f(3) =$

34. $f(7) =$

35. $f(12) =$

36. For the table of $g(x)$ find $g(4)$.

| x | $g(x)$ |
|-----|--------|
| 1 | -4 |
| 2 | -2 |
| 3 | 0 |
| 4 | 2 |
| 5 | 4 |
| 6 | 6 |
| 7 | 8 |

37. For the table of $g(x)$ find $g(2)$.

38. Which statement below is true about this table?

| X | Y |
|----|---|
| -3 | 5 |
| -3 | 0 |
| 1 | 4 |
| 2 | 0 |

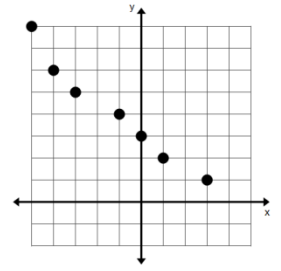
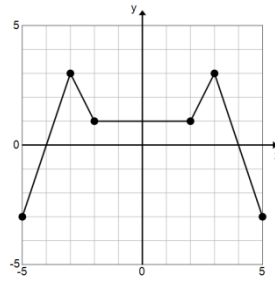
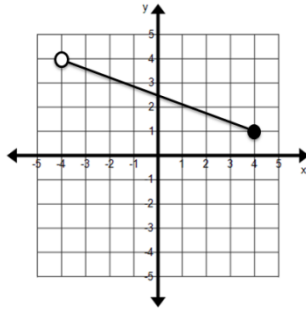
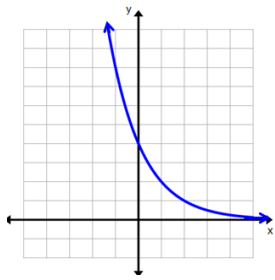
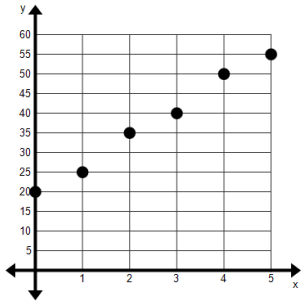
A. It is a function because elements repeat in the domain and range.

B. It is not a function because the -3 repeats in the domain.

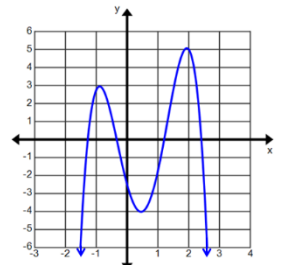
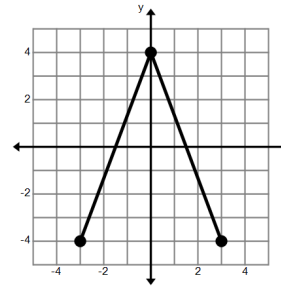
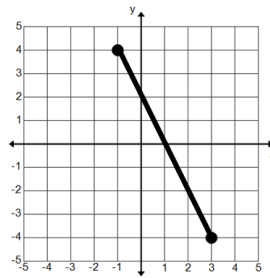
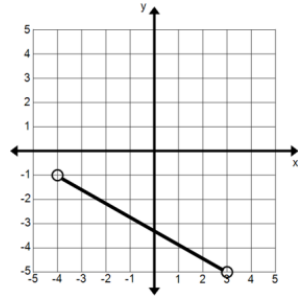
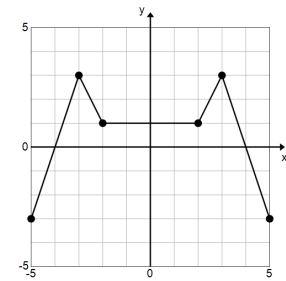
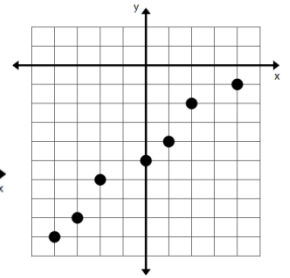
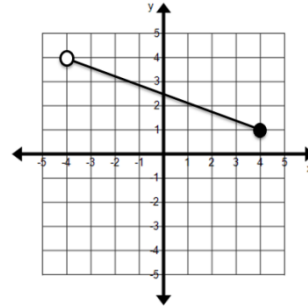
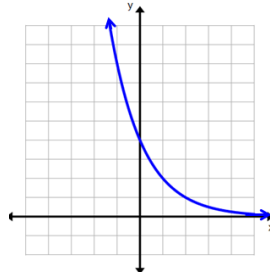
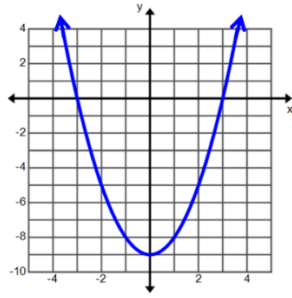
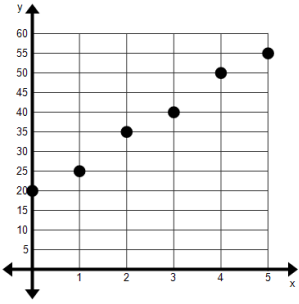
C. It is not a function because the 0 repeats in the range.

D. It is a function because zero is not in the domain.

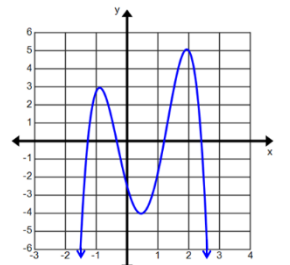
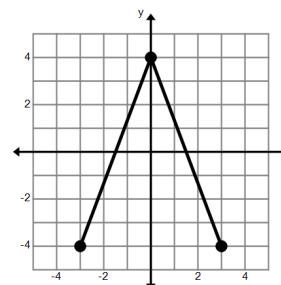
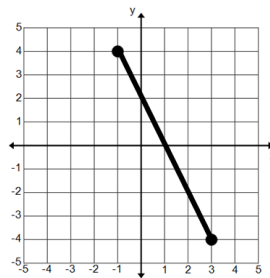
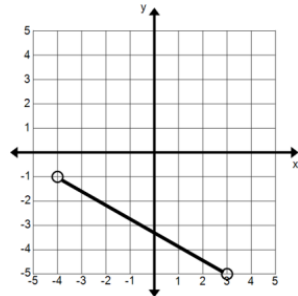
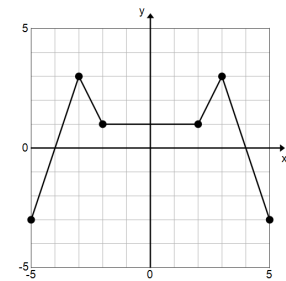
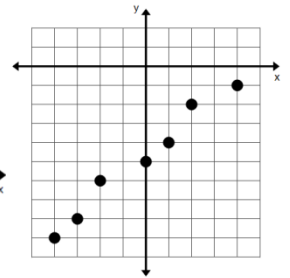
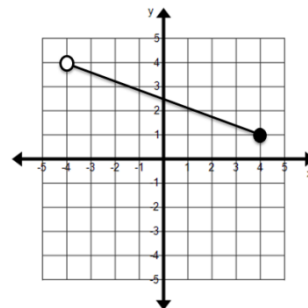
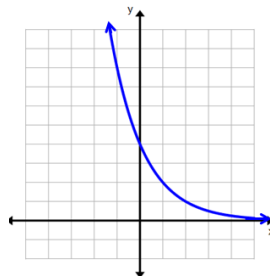
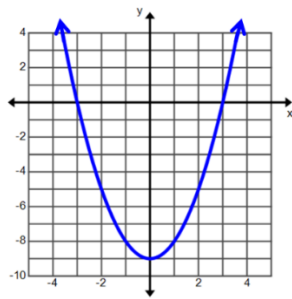
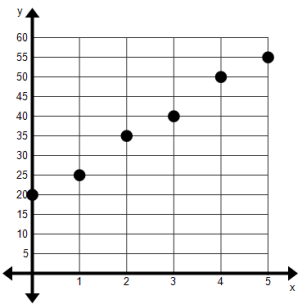
39. Are the following graphs discrete or continuous functions?



40. Determine if the following graphs are increasing or decreasing or both.



41. Determine if the following graphs are positive or negative or both.



42. For each graph, determine the domain and range (using inequalities if necessary).

