Name: _____ Period: _____ Date: _____

Unit 4 – Functions

For #1-10 state whether a) EXPLAIN if it is a function or not, b) the domain , c) the range.

1)   (2, 5), (4, -7), (8, -2), (4, 9)

a) Function?
b) Domain:
c) Range:

2) (2, -7), (4, -7), (8, -2), (-1, 9)

A) Function?
b) Domain:
c) Range:

3)

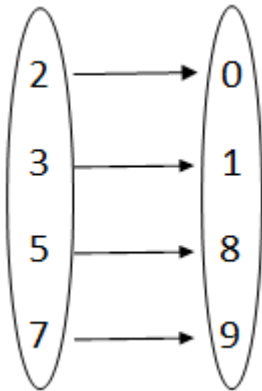| Input (x)	Output (y)
0	3
2	4
4	5
6	3

a) Function?

b) Domain:

c) Range:

4)

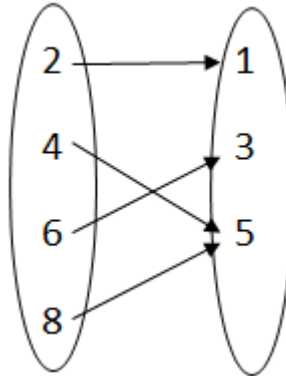| Input (x)	Output (y)
2	3
0	4
-3	5
2	6

a) Function?

b) Domain:

c) Range:

5)

a) Function?
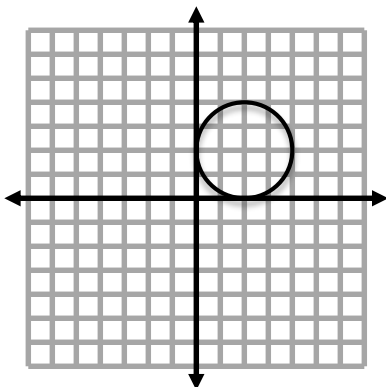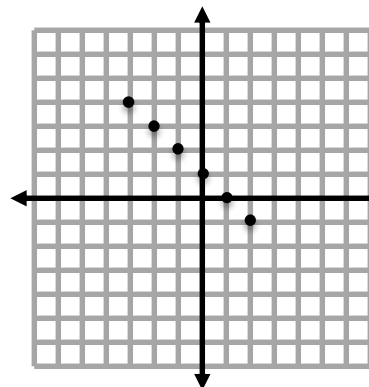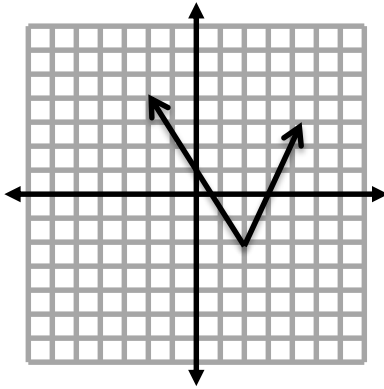
b) Domain:

c) Range:

6)

A) Function?

B) Domain:

c) Range:

7)

a) Function?

b) Domain:

c) Range:

8)

A) Function?

B) Domain:

C) Range:

9)

a) Function?

b) Domain:

c) Range:

10)

Temperature
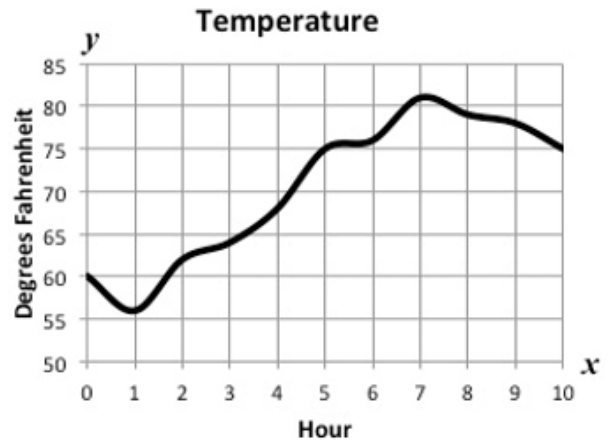
a) Function?

b) Domain:

c) Range:

For #11 – 14 explain **IN CONTEXT** if each is a function or not.

11) Input: Food items on a menu

   Output: Prices

12) Input: Prices

   Output: Food items on a menu

13) Input: Student

   Output: Algebra 1 Regular teacher (NOT intensive)

14) Input: Algebra 1 Regular teacher (NOT intensive)

   Output: Student

15) What grade do you deserve on this and WHY?

16) What will you be doing in 5 years?

The auditorium at Jackson is capable of holding 986 people. For the upcoming talent show, the amount of money that Jackson brings in as revenue is a function of the number of people, n, that go to the talent show. If each ticket costs $15, find the domain and range of this function.

a. **IN WORDS**, what is the domain of this function? (the independent variable)

b. **IN MATH SYMBOLS,** what is the domain of this function? (the restrictions – highest and lowest)

c. **IN WORDS**, what is the range of this function? (the dependent variable)

d. **IN MATH SYMBOLS,** what is the range of this function? (the restrictions – highest and lowest)

e. What is the meaning of $f(200) = 3,000$ in the **context of this problem**?

f. What is the meaning of $f(5) = 75$ in the **context of this problem**?

g. What is the meaning of $f(n) = 12,945$ in the **context of this problem**?

h. What is the meaning of $f(545) = r$ in the **context of this problem**?

i. Is $f(998)$ possible in this problem? Explain why or why not in the **context of this problem.**

j. Could the school bring in $15,000 from ticket sales? Explain why or why not in the **context of this problem.**

Use the piecewise function to the right to answer questions 1-9

$$f(x) = \begin{cases} 10 & \text{if} & x \le 4 \\ 2x - 5 & \text{if} & 4 < x \le 8 \\ \dfrac{x}{2} + 4 & \text{if} & 8 < x \end{cases}$$

1) $f(0) =$

2) $f(100) =$

3) $f(15) =$

4) $f(8) =$

5) $f(30) =$

6) $f(-5) =$

7) $f(3) =$

8) $f(7) =$

9) $f(5) =$

Use the following function to answer questions 10-15

$$g(k) = 20 - 3k$$

10) $g(k) = 32$

11) $g(k) = 44$

12) $g(k) = 17$

13) $g(-7) =$

14) $g(k) = 14$

15) $g(4) =$

5. John earns $8 per hour for his after-school job. He never works more than 18 hours in a week, and he never works a fraction of an hour. The equation that models this situation is $A = 8h$, where A represents the amount John earns and h represents the number of hours John works in a week. What is the reasonable domain of the function A in the given context?

10. Which statement(s) are true about functions?

     I.   Domain denotes the possible values of x.
     II. Range denotes the value of $f(x)$ for the input values of x.

     III. Each element of the domain assigns to multiple elements of the range.

12. For the function $f(x) = 4x - 2$, what is the range of $f(x)$ for the domain $\{-2, 0, 3\}$?

13. The function $m(g)$ provides the number of miles a car can travel on g gallons of gas. The fuel tank holds 14 gallons which allows a maximum ride of 504 miles.

What is the domain of the function?

15. Members of the senior class of Washington High School are selling scented candles to raise money for their senior trip. They wrote the amount of money raised as a function of the number of candles sold. Which set of numbers would be an appropriate domain for the function described?