Key!

Quiz Review – Relations and Functions

Name _____ Hr ____

For questions # 1 – 3, fill in the word that would best complete the missing blank or answer the question and place your answer on the blank provided.

1. In a relation, define the **domain**:
the set of all inputs in a relation, or x-coordinates.

2. In a relation, define the **range**:
the set of all outputs, or y-coordinates.

3. When do we consider a relation, a **function**?
When every input has exactly one output.

For question #4 – 6 choose the best answer from the list provided. Place your answer on the blank provided.

4. What are the three ways in which you can model a relation? 4. C

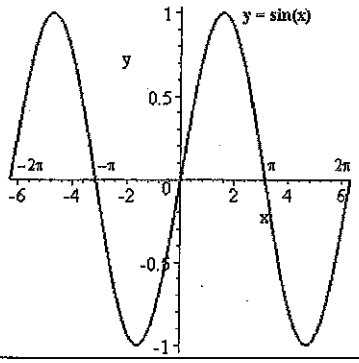
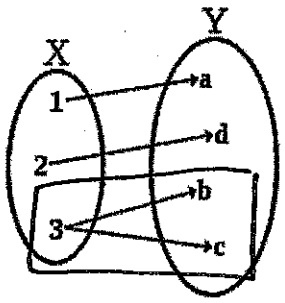
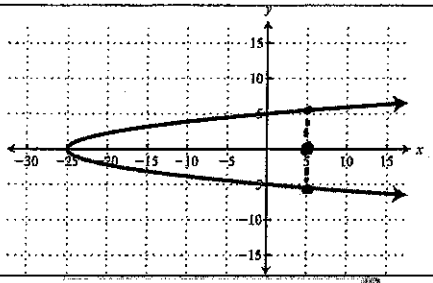
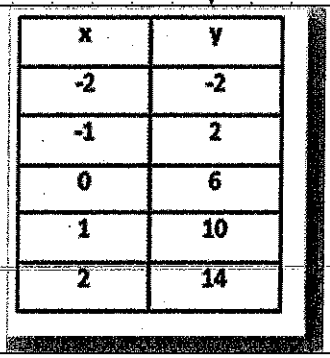
a. graph, mapping diagram, and a pie chart
b. pie chart, graph, and bar graph
(c.) graph, mapping diagram, and a table of values
d. all of the above
e. none of the above

5. In a relation, we call the x-coordinate the input (Domain) and we call the y-coordinate the output (Range).

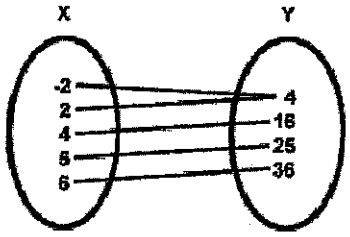
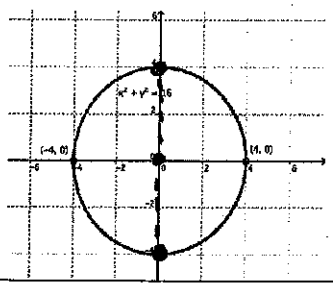
6. In order for a relation to be a function, each input must have _____ output.

(a.) exactly one
b. one or more than one
c. more than one
d. none of the above

For questions #7 - 14, determine if the graph, mapping diagram, relation, or table of values pictured is a function. Respond with the word Yes or No in the blank to the right of the picture. If your answer is No, provide a brief explanation stating why the picture is not a function.

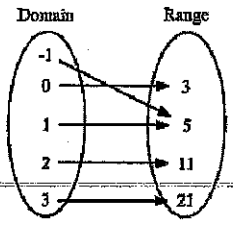
Picture	Place Yes or No in the blank below. If your response is No, provide reasoning to back up your claim.
7. 	Yes, because every x-value has exactly one y-value.
8. 	No, because the x-value (or input) 3 has 2 y-values (or outputs), b and c.
9. 	No, because the inputs (x-values) have more than one output (y-values) Ex.) (5, 5) & (5, -5)
10. 	Yes, every input has only one output.

x	y
-2	-2
-1	2
0	6
1	10
2	14

11. {(-3 , -4), (-2, 5), (-1, 4), (-1, 7), (0, 8)}	No, the input -1 has two outputs, 4 & 7.
12.  	Yes, each input has only one output.
13. Age | 7 | 8 | 9 | 10 | 11 Weight | 98 | 102 | 110 | 110 | 120	Yes, each input has only one output
14. 	No, there are inputs with more than one output Ex.) (0,4) & (0,-4)

For each numbered box # 15 – 19 containing a relation on the left, match the lettered box on the right that is showing the same relation using a different model. Place your letter answer next to the appropriate number below.

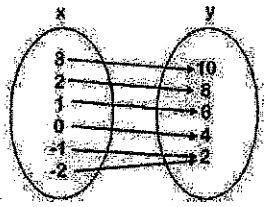
15. D 16. C 17. E 18. B 19. A

15.  		A 8 | -1 9 | -3 10 | -1 13 | 5

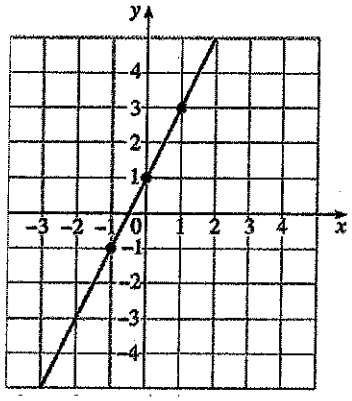
16.

-2	-1	0	1	2
3	0	-1	0	3

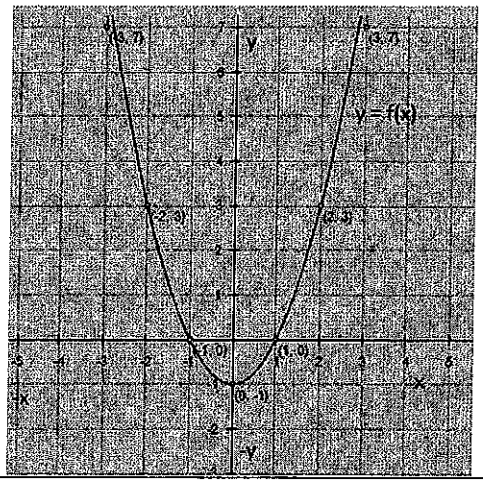
B



17.



C



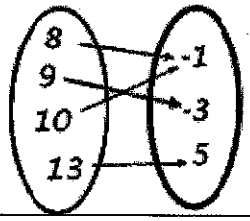
18.

{(3, 10), (2, 8), (1, 6), (0, 4), (-1, 2), (-2,2)}

D

{(-1, 5), (0, 3), (1, 5), (2, 11), (3, 21)}

19.



E

-2	-1	0	1	2
-3	-1	1	3	5

20. Determine whether or not the following real-life relations would represent functions. Answer YES or NO and EPLAIN your reasoning.

-A relation in which the **domain** is the age of each student in Mrs.Stuarts 8th grade class, and the **range** is the student's percent grade in the class. Can this relation be considered a function?

No, because if two students have the same age, then an input will have more than one output.

and different grades

-A relation in which the **domain** is the day of the month in December, and the **range** is the average temperature in degrees farenheit on the given day. Can this relation be considered a function?

Yes, because each day will not have more than one average temperature.

-A relation that describes your road trip to Tennessee. The **domain** represents the number of hours that you have been driving, and the **range** represents your distance from home at any given hour. Can this relation be considered a function?

Yes, because the longer you drive, the farther you get from home. Each hour will be associated with a different distance.

-Imagine that you forgot to turn in your math homework, so you have to leave your house on Tuesday afternoon and walk to the school, and then home again so that you don't lose points on the assignment! We want to create a relation that describes your walk **to and from** school. The **domain** represents your distance from home, and the **range** represents the time of day that you are at that given distance from home. Can this relation be considered a function?

No, since you are walking to and from school, there will be times when the distance from your house (input) will be associated with two different outputs, or times in which you are at that distance.

20. Essay Question

Now it is your turn! Below, construct an essay describing two examples of real-world situations representing relations. One of these relations should be a function, and the other *should not* be a function (just a relation). Provide details in your examples, and explain why one of the examples represents a function and why the other does not represent a function. Below is a description of how you will be scored on the essay.