

## Chapter 6 Test

### Functions

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Name \_\_\_\_\_

Class \_\_\_\_\_

Ms. Angie

Date \_\_\_\_\_

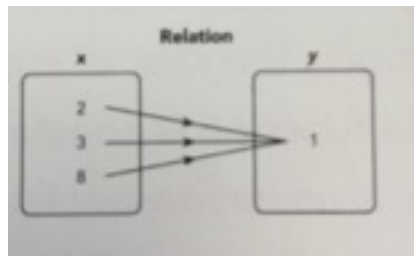
**Given the relation describe, identify the input and the output.**

1.) Alison wants to find the total cost of buying 4 adult admission tickets to an amusement park.

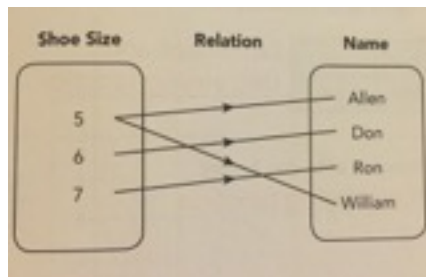
2.) Bruce wants to find the volume of a sphere given its radius.

**Based on the mapping diagrams state the type of relations. Tell whether the relation is a function. Explain.**

3.)

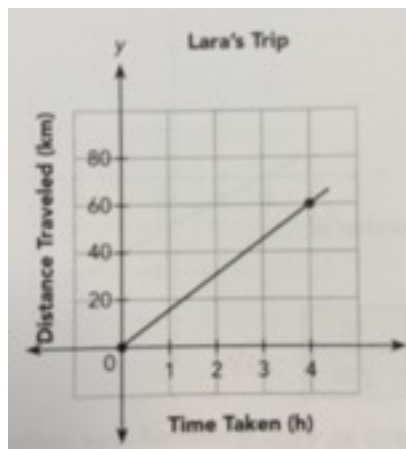


4.)

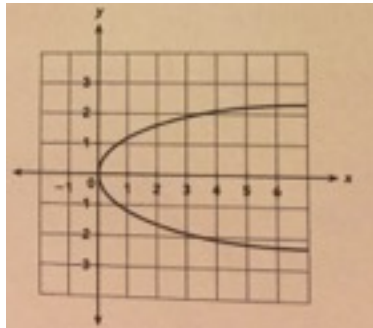


**Tell whether the relation represented by the graphs are functions. Explain.**

5.)



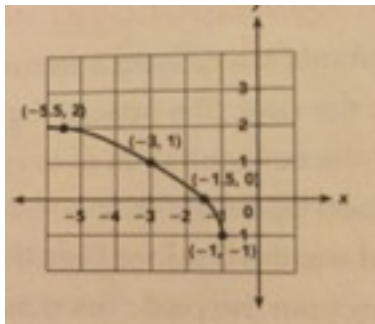
6.)



**Tell whether each function is linear or non-linear. Then tell whether the function is increasing or decreasing.**

7.) A barrel contains 5 gallons of water. Water is then added to the barrel at a constant rate of 0.1 gallons per minute.

8.)



**Solve. Show your work.**

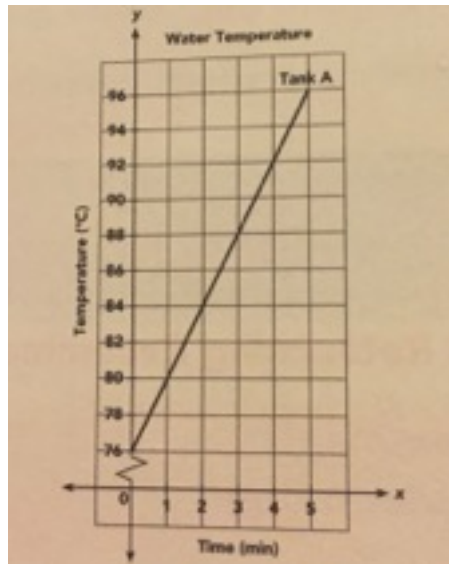
9.) The table shows the value of Mr. Washington's car,  $y$  dollars, over  $x$  years.

Year ( $x$ )	0	1	2	3	4	5
Car Value ( $y$ dollars)	15,000	13,000	11,000	9,000	7,000	5,000

a) Give the least possible input value and give the corresponding output value. Explain what it represents in this situation.

b) Tell whether the function is increasing or decreasing. Then tell whether the function is linear or nonlinear. Explain.

10.) The initial water temperature in Tank A was  $76^{\circ}\text{C}$ . The graph shows the temperature of the water in Tank A,  $y^{\circ}\text{C}$ , as a function of the number of minutes the water is heated  $x$ .



Tank B contains the same volume of water as Tank A, but the initial water temperature in Tank A was  $80^{\circ}\text{C}$ .

The table shows the temperature of the water in Tank B,  $y^{\circ}\text{C}$  as a function of the number of minutes the water is heated,  $x$ .

Tank B

Number of Minutes ( $x$ )	0	1	2	3	4	5
Water Temperature ( $y^{\circ}\text{C}$ )	80	82	84	86	88	90

a) On the coordinate plane above, plot a graph to represent the function in the table.

b) Write an algebraic equation to represent each function in the graph.

c) Use a verbal description to compare the two functions. Give a possible reason for the difference in the rate of temperature change.

11.) A biologist measured the number of mosquito larvae on the surface of a pond. The biologist randomly sampled various spots on the ponds surface. For each spot, he measured the surface area and counted the number of mosquito larvae in that spot.

Surface Area (cm)	4	6	20	25	40	40	45	45
Number of Mosquito Larvae	1	1	4	5	5	9	9	11

a) Draw a mapping diagram to represent the relation between the surface area and the number of mosquito larvae.

b) Identify the relation between the surface area and the number of mosquito larvae for a given surface area. Then tell whether the relation represented by the mapping diagram is a function. Explain.

BONUS: The biologist decides to find the average number of mosquito larvae for a given surface area. complete the table. Then tell whether this relation is a function. Explain.

Surface Area	4	6	20	25	40	45
Average Number of Mosquito Larvae		1		5	7	