Name _____ Date _____

Domain and Range from a Table or a Rule

Directions: A function pairs each input in its domain with exactly one output, and its range is the set of all its outputs. A table that lists every pair shows the whole relation, and a domain written as an inequality includes every number in that interval.

Every pair of a relation

Input x	**Output y**
1	4
2	7
3	4
2	9

1. The table lists every pair in a relation. Is the relation a function? Choose the answer with the correct reason.

A. No, because the input 2 is paired with two different outputs, 7 and 9.

B. Yes, because every input has an output.

C. No, because the output 4 appears twice.

D. Yes, because the inputs are whole numbers.

Every pair of another relation

Input x	**Output y**
-1	3
0	3
2	5
4	7

2. This table lists every pair in a relation. Which statements are true? Select the three true statements.

☐ A. The relation is not a function, because 3 appears twice as an output.

☐ B. The relation is a function.

☐ C. The number 1 is in the domain.

☐ D. The range is 3, 5 and 7.

☐ E. The domain is -1, 0, 2 and 4.

3. The function $f(x) = x^2 - 4$ has the domain $-2, -1$, 1 and 2. How many different numbers are in the range of f?

_____

4. Match each function and its stated domain to its range. In each range, y stands for the outputs.

Write the letter of the matching answer on each line.

1. _____ $f(x) = 2x + 1$, for $x = 0, 1, 2, 3$
2. _____ $g(x) = 10 - 2x$, for $0 \le x \le 4$
3. _____ $h(x) = x^2$, for $-2 \le x \le 3$
4. _____ $k(x) = 3x - 2$, for $0 \le x \le 4$

A. 0, 1, 2, 3
B. $4 \le y \le 9$
C. 1, 3, 5, 7
D. $2 \le y \le 10$
E. $-2 \le y \le 10$
F. $0 \le y \le 9$

5. Each item names the input of a function in a situation. Match each input to the domain that fits the situation.

Write the letter of the matching answer on each line.

1. _____ n, the number of $8 tickets sold for a show that has 120 tickets to sell
2. _____ t, the number of seconds since a 10-second timer started, while it runs
3. _____ p, the number of people riding in a car that seats 5, counting the driver
4. _____ g, the gallons of gas in a car's tank, which holds at most 12 gallons

A. All numbers from 0 to 120
B. All numbers from 0 to 12
C. The whole numbers 0, 1, 2, ..., 10
D. The whole numbers 1, 2, 3, 4, 5
E. All numbers from 0 to 10
F. The whole numbers 0, 1, 2, 3, 4, 5
G. The whole numbers 0, 1, 2, ..., 120

6. A food stand has 50 tacos to sell at $3 each. The money it takes in from selling n tacos is $M(n) = 3n$ dollars, for $n = 0, 1, 2, ..., 50$. Which describes the range of M?

A. The numbers 0, 3, 6, 9, ..., 150
B. The numbers 0, 1, 2, 3, ..., 50
C. The numbers 3, 6, 9, ..., 150
D. All numbers from 0 to 150

7. When a drain is opened, the water level in a tank is $L(t) = 50 - 4t$ centimeters, t seconds later, for $0 \le t \le 10$. Which describes the range of L?

A. $0 \le L(t) \le 10$
B. $10 \le L(t) \le 50$
C. $L(t) = 10, 14, 18, ..., 50$ only
D. $0 \le L(t) \le 50$

8. Each student in a class is paired with the month of the student's birthday. Is this pairing a function from students to months? Choose the answer with the correct reason.

A. No, because two students can have the same birthday month.
B. Yes, because each student has exactly one birthday month.
C. Yes, because each month has exactly one student.
D. No, because some months might have no students.