**Relations and Functions Substitution Worksheet**

**Name**:_____.    **Date**:_____.    **Grade**: 8th

**Answer the following questions according to the given instructions:**

1. **Which of the following relations is NOT a function?**
   A. {(1,2), (2,3), (3,4)}
   B. {(4,5), (4,6), (5,7)}
   C. {(-1,0), (0,1), (1,2)}
   D. {(2,8), (3,9), (4,10)}

**Answer:** _____

2. **A function assigns:**

   A. One output to each input
   B. One input to many outputs
   C. Many inputs to many outputs
   D. No outputs at all

**Answer:** _____

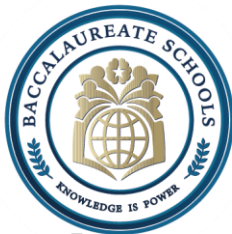3. **Which of the following best describes the domain of a function?**

   A. The set of outputs
   B. The set of inputs
   C. The graph
   D. The equation

**Answer:** _____

4. **Determine whether each relation is a function. Write Yes or No.**

   A. {(1,3), (2,4), (3,5), (4,6)}
   B. {(2,7), (2,9), (3,11)}
   C. {(5,10), (6,10), (7,10)}
   D. {(-1,4), (-1,5), (-2,6)}

**Answer:** _____

5. Write a relation that is:

   **A.** A function.
   **B.** Not a function.

**Answers:**

A. _____

B. _____

6. Find the domain and range of the relation:

$$\{(2,5), (4,7), (6,9), (8,11)\}$$

**Domain:** _____

**Range:** _____

7. The relation is: {(x, y) | y = x + 3, x = 1, 2, 3, 4}. List the ordered pairs, then find domain and range.

**Ordered Pairs:** _____

**Domain:** _____ **Range:** _____

8. A taxi charges a flat fee of $50 plus $10 per kilometre. Let x = number of kilometres travelled, y = total fare. Answer the following:

a) Is this a function? _____

b) Write three ordered pairs: _____

c) Reasonable domain: _____

d) Reasonable range: _____

9. The temperature T (in °C) throughout a day depends on time t (in hours). Answer the following:

a) Is T a function of t? _____

b) Reasonable domain: _____

c) Reasonable range: _____

**10.** **Can a relation have:**

    **a) Different x-values with the same y-value and still be a function?**

    **b) Same x-value with different y-values and still be a function?**

**Explain:**

**a)** _____

**b)** _____